3R - 386

2011 AGWMR

JAN 2012

2011 ANNUAL GROUNDWATER REPORT

OH Randel #7

3RP-386

Unit D, Section 15, Township 26N, Range 11W
San Juan County, New Mexico

PREPARED FOR:

Mr. Steve Austin
Navajo Nation Environmental Protection Agency
Post Office Box 1999
Shiprock, New Mexico 87420

January 2012

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Appendices

2011 XTO GROUNDWATER REPORT

OH RANDEL #007
3RP-386

SITE DETAILS

LEGALS - TWN: 26N **RNG:** 11W **SEC:** 15 **UNIT:** D
OCD HAZARD RANKING: 20 **LAND TYPE:** NAVAJO
LATITUDE: 36.49194 **LONGITUDE:** 107.99572

INTRODUCTION

XTO Energy Inc. (XTO) acquired the OH Randel #007 well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Dakota Sandstone and Gallegos Gallup formations and is currently active. This location is located near an irrigated field owned and operated by Navajo Agricultural Products Inc. (NAPI). A topographic map is included as ***Figure 1***.

HISTORY

In March 2002 during equipment upgrades XTO encountered hydrocarbon impacted soil that was assumed to be an abandoned earthen separator pit. The submitted Pit Closure report is included as ***Attachment 1***. Soil samples were collected and a groundwater monitoring well MW-1 was installed to determine impact to groundwater. The Completion Diagram and Borehole Log is presented ***Figure 3***. Groundwater was encountered at 16 feet below ground surface. After installation of the monitoring well, 3.84 inches of free phase product was discovered at a depth of 16.36 feet below ground surface. Additional monitoring wells (MW-2, MW-3, MW-4, MW-5 & MW-6) were installed near the source area; upgradient, downgradient and crossgradient of the source area. Completion Diagrams and Borehole Logs for the monitoring wells installed in April 2002 are presented in ***Figures 4-8.***

Phase separated hydrocarbons (PSH) were observed in monitoring wells MW-1, MW-2 and MW-6 during 2002-2004 sampling events. A total of approximately 22 gallons of product was recovered by hand bailing the PSH as of January 2006.

The 2005 annual groundwater report was submitted to the New Mexico Oil Conservation Division (OCD) in January 2006 proposing excavation of soil impacted by the former separator pit and the installation of additional groundwater monitoring wells to further delineate hydrocarbon impact to groundwater.

XTO submitted a remediation work plan to Mr. Steve Austin with the Navajo Nation EPA (NNEPA) in August of 2006. A copy of this work plan, written by Lodestar Services, Inc. (Lodestar), is included as ***Attachment 2***. This work plan was approved in October of 2006. The first phase of the work plan was excavation of the earthen separator pit to beneath the water table and backfilling with clean soil, which was completed in November of 2006. Approximately 9,000 cubic yards of hydrocarbon impacted soil was removed and transported offsite to an approved landfarm. No PSH was observed during the November 2006 excavation work. Monitoring wells MW-1, MW-2 and MW-6 were removed during the excavation. The US EPA Region 9 and NNEPA approved the closure of the excavation as described in the Lodestar Report of Excavation and Sampling, which is

included as ***Attachment 3***. Following the excavation work, groundwater from monitoring wells MW-3, MW-4, and MW-5 revealed no detectable concentrations or trace concentrations of dissolved hydrocarbons all beneath New Mexico Water Quality Control Commission (WQCC) standards.

The 2006 annual groundwater report was submitted to the OCD in February 2007 proposing installation of additional groundwater monitoring wells (MW-7 & MW-8) to the north and east of the former source area and quarterly sampling.

Monitoring wells MW-7 and MW-8 were installed to the north and the east of the former pit in May 2007. Completion Diagrams and Borehole Logs are presented in ***Figures 9-10***. It appeared that groundwater impact throughout the excavated area had been adequately delineated with the exception of the far northwest edge (MW-7). XTO proposed to evaluate other potential sources of groundwater impact in this area and screen appropriate remediation methods.

The 2007 annual groundwater report was submitted to the OCD in February of 2008 proposing to discontinue sampling of monitoring wells MW-3, MW-4, and MW-5, and to begin sampling of monitoring wells MW-7 and MW-8 on a semi-annual basis.

The 2008 annual groundwater report was submitted to the OCD in April 2009 proposing installation of two (2) additional monitoring wells, (MW-9 & MW-10), the addition of a chemical oxygenate to monitoring well MW-7, and the beginning of quarterly sampling.

Monitoring wells MW-9 and MW-10 were installed in July 2009. The water bearing unit that supplies the existing groundwater monitoring wells was practically dry. The existing monitoring wells are completed in low hydraulically conducting clay. Monitoring wells MW-9 and MW-10 were complete when drilling encountered the same impermeable clay bed. After allowing 24 hours for the new wells to fill in with water MW-9 contained only 1 ½ feet of water and did not recharge after purging dry while MW-10 never filled with water and was ultimately plugged. The completion diagrams and borehole logs are presented at ***Figures 11-13***. Monitoring well MW-9 was sampled after development.

The 2009 Annual Groundwater report was submitted to Mr. Glenn Von Gonten in March of 2010. The report recommended the continued use of chemical oxygenate in monitoring well MW-7 to enhance the bioremediation of the hydrocarbon constituents found in the groundwater aquifer. The 2009 Annual Groundwater Report also recommended the continued quarterly sampling of monitoring wells MW-7 and MW-9, as well as to discontinue sampling of monitoring well MW-8 due to four (4) consecutive sampling events returning results below the WQCC standards.

The 2010 Annual Groundwater report was submitted to Mr. Glenn Von Gonten of NMOCD and Mr. Steve Austin with NNEPA in March of 2011. The report recommended continued quarterly monitoring of monitoring well MW-7, as well as to discontinue monitoring of monitoring well MW-9 due to four (4) consecutive sampling events returning results below the WQCC standards for all BTEX constituents. XTO also proposed the addition of hydrogen peroxide into the groundwater aquifer at this site, using monitoring well MW-7 as a conduit.

The report summary of water level data and laboratory results from historical and current groundwater monitoring is included as ***Table 1*** and ***Table 2***. Copies of the laboratory

data sheets and associated quality assurance/quality control data for 2011 are included as ***Attachment 4***.

METHODOLOGY

Monitoring well MW-7 was sampled quarterly during 2011 for benzene, toluene, ethyl benzene and total xylene (BTEX).

Water Level Measurements

Static groundwater level monitoring includes recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. A summary of water level data is included in ***Table 1***.

Groundwater Sampling

Prior to sampling groundwater, depth to groundwater and total depth of wells is measured with a Keck oil/water interface probe. Presence of any free-phase crude oil is also investigated using the interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells is calculated, and a minimum of three casing volumes of water is purged from each well using a disposable bailer or a permanent decontaminated PVC bailer. As water is extracted, pH, electric conductivity and temperature are monitored. Wells are purged until these properties stabilize, indicating that the purge water is representative of aquifer conditions. Stabilization is defined as three consecutive stable readings for each water property (±0.4 units for pH, ±10 percent for electric conductivity and ±2º C for temperature). All purge water is disposed of into tanks on site.

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two 40-millititer (ml) glass vials. The pre-cleaned, non-preserved vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of collection, well designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Environmental Science Corporation (ESC) based in Mt. Juliet, Tennessee. Samples were packaged with ice in a cooler and shipped to ESC via Fed-ex overnight to ensure samples were cold and did not exceed their holding time. Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signature. Field Notes are included as ***Attachment 5***.

Groundwater Contour Maps

Top of casing well elevations are surveyed using a surveyor's level; and groundwater elevations obtained from monitoring wells during site visits are used to draft groundwater contour maps. Contours are inferred based on groundwater elevations obtained and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.).

RESULTS

Laboratory results from MW-7 showed decreasing concentrations of BTEX when compared to concentrations detected in 2010. Benzene concentrations declined from a maximum of 2,200 micrograms per liter (µg/l) in February 2011 to a minimum of 26 µg/l in November 2011. Toluene concentrations declined from a maximum of 1,000 µg/l in February 2011 to a minimum of 16 µg/l in November 2011. Ethylbenzene concentrations

declined from a maximum of less than 120 µg/l in February 2011 to a minimum of 2.3 µg/l in November 2011. Total xylenes concentrations declined from a maximum of 1,800 µg/l in February 2011 to a minimum of 20 µg/l in November 2011. Laboratory reports are included in ***Attachment 4***.

Field data collected during site monitoring activities indicate the groundwater flow direction varies from north to northeast with a gradient ranging from 0.12 feet per foot to 0.2 feet per foot. Groundwater at this site may be influenced by irrigation of a field adjacent to the location. Additionally, it is possible the groundwater at this site is a shallow water table created by irrigation water from this field. The tendency of the monitoring wells to bail dry indicate that the aquifer is tight, and most likely could not be used for beneficial use. ***Figure 2*** illustrates the estimated groundwater gradients for 2011.

CONCLUSIONS

Laboratory results from groundwater monitoring in 2011 indicate that benzene concentrations in monitoring well MW-7 remain over the WQCC limits, however, toluene, ethylbenzene, and total xylenes concentrations were below the WQCC standards for three of the past four monitoring events dating back to February 2011. BTEX concentrations in MW-7 are declining steadily. Based on the historical groundwater results for this area, and the shallow groundwater gradient, it seems that the benzene and xylene impact is confined to a small area surrounding monitoring well MW-7, and is not migrating off site.

RECOMMENDATIONS

XTO contracted LT Environmental, Inc. (LTE) analyze beneficial use of groundwater at the Site (***Attachment 6***). This analysis concluded that attenuation of BTEX in groundwater is an ongoing process that will continue through natural processes and migration of any residual BTEX will be restricted by the subsurface lithology and hydrologic properties of the aquifer. Groundwater at the Site is not a current source of beneficial use. Based on the poor background water quality of the aquifer, legal restrictions on its source for uses other than irrigation, and low productivity, the aquifer is not a viable source for any beneficial use in the future. As such, XTO is requesting Site closure from the NMOCD based on the lack of present and reasonably foreseeable beneficial use of the impacted groundwater (***Attachment 6***).

Following NMOCD and NNEPA approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

Table 1

Water Level Summary Table

TABLE 5

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	4/22/2002	16.30	16.63	No Survey Data
MW-1	4/24/2002	NM	NM	No Survey Data
MW-1	8/27/2002	16.19	16.49	No Survey Data
MW-1	10/08/2002	15.79	16.16	No Survey Data
MW-1	5/23/2003	15.73	16.04	No Survey Data
MW-1	5/28/2003	15.81	15.99	No Survey Data
MW-1	6/6/2003	15.93	16.04	No Survey Data
MW-1	6/18/2003	15.97	16.04	No Survey Data
MW-1	6/26/2003	17.85	17.93	No Survey Data
MW-1	7/31/2003	16.18	16.19	No Survey Data
MW-1	8/29/2003	NM	16.29	No Survey Data
MW-1	6/21/2004	16.28	17.09	No Survey Data
MW-1	9/20/2006	0.00	22.28	No Survey Data
MW-1	12/5/2006 *	NM	NM	No Survey Data
MW-2	4/22/2002	NM	18.32	No Survey Data
MW-2	4/24/2002	18.35	18.38	No Survey Data
MW-2	8/27/2002	18.92	19.86	No Survey Data
MW-2	10/08/2002	17.50	18.02	No Survey Data
MW-2	5/23/2003	17.30	17.83	No Survey Data
MW-2	5/28/2003	17.62	17.78	No Survey Data
MW-2	6/6/2003	17.71	17.83	No Survey Data
MW-2	6/18/2003	17.79	17.88	No Survey Data
MW-2	6/26/2003	16.05	16.09	No Survey Data
MW-2	7/31/2003	NM	15.86	No Survey Data
MW-2	8/29/2003	NM	15.99	No Survey Data
MW-2	6/21/2004	16.10	16.83	No Survey Data
MW-2	9/20/2006	0.00	17.15	No Survey Data
MW-2	12/5/2006 *	NM	NM	No Survey Data
MW-3	4/22/2002	0.00	16.26	6312.95
MW-3	4/24/2002	0.00	16.25	6312.96
MW-3	8/27/2002	0.00	15.28	6313.93

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Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	10/8/2002	0.00	14.74	6314.47
MW-3	3/3/2003	0.00	15.17	6314.04
MW-3	6/18/2003	0.00	15.16	6314.05
MW-3	8/29/2003	0.00	15.39	6313.82
MW-3	9/20/2006	NM	NM	NM
MW-3	12/5/2006	0.00	13.85	6315.36
MW-3	3/8/2007	0.00	13.40	6315.81
MW-3	5/17/2007	0.00	12.87	6316.34
MW-3	8/9/2007	0.00	12.37	6316.84
MW-3	5/12/2008	0.00	14.83	6314.38
MW-3	11/7/2008	0.00	13.92	6315.29
MW-3	7/8/2009	0.00	14.14	6315.07
MW-3	11/5/2009	0.00	14.53	6314.68
MW-3	5/25/2010	0.00	14.21	6315.00
MW-3	8/12/2010	0.00	NM	NM
MW-3	11/17/2010	0.00	15.30	6313.91
MW-3	2/14/2011	NM	NM	NM
MW-3	5/17/2011	0.00	15.74	6313.47
MW-3	8/9/2011	0.00	15.87	6313.34
MW-3	11/9/2011	0.00	16.21	6313.00
MW-4	4/22/2002	0.00	16.63	6311.45
MW-4	4/24/2002	0.00	16.66	6311.42
MW-4	8/27/2002	0.00	16.47	6311.61
MW-4	10/8/2002	0.00	16.03	6312.05
MW-4	3/3/2003	0.00	15.94	6312.14
MW-4	6/18/2003	0.00	16.03	6312.05
MW-4	8/29/2003	0.00	16.29	6311.79
MW-4	9/20/2006	NM	NM	NM
MW-4	12/5/2006	0.00	13.75	6314.33
MW-4	3/8/2007	0.00	12.55	6315.53
MW-4	5/17/2007	0.00	13.03	6315.05
MW-4	8/9/2007	0.00	12.59	6315.49

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Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-4	5/12/2008	0.00	12.57	6315.51
MW-4	11/7/2008	0.00	13.68	6314.40
MW-4	7/8/2009	0.00	13.72	6314.36
MW-4	11/5/2009	0.00	14.12	6313.96
MW-4	5/25/2010	0.00	13.86	6314.22
MW-4	8/12/2010	0.00	14.39	6313.69
MW-4	11/17/2010	0.00	14.60	6313.48
MW-4	2/14/2011	0.00	15.55	6312.53
MW-4	5/17/2011	0.00	14.95	6313.13
MW-4	8/9/2011	0.00	15.11	6312.97
MW-4	11/9/2011	0.00	15.38	6312.70
MW-5	4/22/2002	0.00	19.11	6314.12
MW-5	4/24/2002	0.00	19.14	6314.09
MW-5	8/10/2002	0.00	19.10	6314.13
MW-5	6/18/2003	0.00	18.86	6314.37
MW-5	6/21/2004	0.00	19.64	6313.59
MW-5	6/28/2005	0.00	17.30	6315.93
MW-5	9/20/2006	NM	NM	NM
MW-5	12/5/2006	0.00	18.65	6314.58
MW-5	3/8/2007	0.00	18.15	6315.08
MW-5	5/17/2007	0.00	17.78	6315.45
MW-5	8/9/2007	0.00	NM	NM
MW-5	5/12/2008	0.00	18.82	6314.41
MW-5	11/7/2008	0.00	18.90	6314.33
MW-5	7/8/2009	0.00	20.08	6313.15
MW-5	11/5/2009	0.00	20.44	6312.79
MW-5	5/25/2010	0.00	20.33	6312.90
MW-5	8/12/2010	0.00	20.51	6312.72
MW-5	11/17/2010	0.00	20.93	6312.30
MW-5	2/14/2011	0.00	20.97	6312.26
MW-5	5/17/2011	0.00	21.20	6312.03
MW-5	8/9/2011	0.00	21.47	6311.76

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Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-5	11/9/2011	0.00	21.69	6311.54
MW-6	4/22/2002	0.00	18.31	No Survey Data
MW-6	4/24/2002	0.00	18.32	No Survey Data
MW-6	8/27/2002	NM	NM	No Survey Data
MW-6	10/8/2002	16.84	18.13	No Survey Data
MW-6	5/23/2003	16.62	17.95	No Survey Data
MW-6	5/28/2003	16.68	17.90	No Survey Data
MW-6	6/6/2003	16.80	18.00	No Survey Data
MW-6	6/18/2003	16.78	18.02	No Survey Data
MW-6	6/26/2003	16.88	18.10	No Survey Data
MW-6	7/31/2003	17.77	19.13	No Survey Data
MW-6	8/29/2003	16.88	18.34	No Survey Data
MW-6	6/21/2004	17.78	18.95	No Survey Data
MW-6	9/20/2006	15.79	16.87	No Survey Data
MW-6	12/5/2006 *	NM	NM	No Survey Data
MW-7	5/17/2007	0.00	15.46	6315.90
MW-7	8/9/2007	0.00	14.72	6316.64
MW-7	11/27/2007	0.00	14.91	6316.45
MW-7	5/12/2008	0.00	15.12	6316.24
MW-7	11/7/2008	0.00	15.82	6315.54
MW-7	7/8/2009	0.00	16.44	6314.92
MW-7	11/5/2009	0.00	16.76	6314.60
MW-7	5/25/2010	0.00	16.63	6314.73
MW-7	8/12/2010	0.00	16.82	6314.54
MW-7	11/17/2010	0.00	17.65	6313.71
MW-7	2/14/2011	0.00	17.74	6313.62
MW-7	5/17/2011	0.00	17.92	6313.44
MW-7	8/9/2011	0.00	18.11	6313.25
MW-7	11/9/2011	0.00	18.46	6312.90
MW-8	5/17/2007	0.00	19.64	6314.86

TABLE 5

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-8	8/9/2007	0.00	18.94	6315.56
MW-8	11/27/2007	0.00	19.20	6315.30
MW-8	5/12/2008	0.00	19.97	6314.53
MW-8	11/7/2008	0.00	19.55	6314.95
MW-8	7/8/2009	0.00	20.01	6314.49
MW-8	11/5/2009	0.00	20.41	6314.09
MW-8	5/25/2010	0.00	20.31	6314.19
MW-8	8/12/2010	0.00	20.41	6314.09
MW-8	11/17/2010	0.00	20.63	6313.87
MW-8	2/14/2011	0.00	20.35	6314.15
MW-8	5/17/2011	0.00	20.30	6314.20
MW-8	8/9/2011	0.00	20.83	6313.67
MW-8	11/9/2011	0.00	21.00	6313.50
MW-9	7/8/2009	0.00	35.26	6295.10
MW-9	11/5/2009	0.00	33.08	6297.28
MW-9	5/25/2010	0.00	29.28	6301.08
MW-9	8/12/2010	0.00	31.12	6299.24
MW-9	5/25/2010	0.00	20.31	6310.05
MW-9	8/12/2010	0.00	20.41	6309.95
MW-9	11/17/2010	0.00	30.49	6299.87
MW-9	2/14/2011	0.00	31.60	6298.76
MW-9	5/17/2011	0.00	30.39	6299.97
MW-9	8/9/2011	0.00	29.84	6300.52
MW-9	11/9/2011	0.00	28.76	6301.60

Notes:

BTOC - Below Top of Casing

NM - Not Measured

AMSL - Above Mean Sea Level

* - Well was destroyed

Table 2

Groundwater Analytical Results Summary Table

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
NMWQCC Groundwater Standard		**10 ug/L**	**750 ug/L**	**750 ug/L**	**620 ug/L**
MW-3	4/24/2002	24	2.4	0.58	200
MW-3	8/27/2002	9.4	ND	ND	150
MW-3	10/8/2002	NA	NA	NA	NA
MW-3	3/3/2003	5.5	ND	ND	43
MW-3	6/18/2003	6.1	0.97	ND	43
MW-3	8/29/2003	3.2	0.53	ND	24
MW-3	12/5/2006	<1	<1	<1	<3
MW-3	5/17/2007	<1	<1	<1	<2
MW-3	8/9/2007	<1	<1	<1	<2
MW-4	4/24/2002	ND	0.59	ND	2.1
MW-4	8/27/2002	1.3	ND	ND	3.5
MW-4	3/3/2003	4.2	ND	ND	5
MW-4	6/18/2003	6.2	ND	ND	4.5
MW-4	8/29/2003	8.3	ND	ND	4.3
MW-4	12/5/2006	<1	<1	<1	<3
MW-4	5/17/2007	<1	<1	<1	<2
MW-4	8/9/2007	<1	<1	<1	<2
MW-5	4/24/2002	**510**	0.64	8.9	240.0
MW-5	8/10/2002	NA	NA	NA	NA
MW-5	6/18/2003	**1,100**	20	ND	**660.0**
MW-5	6/21/2004	**2,000**	ND	ND	260.0
MW-5	6/28/2005	**1,100**	15	ND	160.0
MW-5	12/5/2006	**37**	<1	<1	4.1
MW-5	5/17/2007	<1	<1	<1	<2
MW-6	4/24/2002	**6,100**	**4,800**	**920**	**6,600**
MW-7	5/17/2007	**8,500**	**17,000**	**980**	**16,000**
MW-7	8/9/2007	**9,800**	**11,000**	**770**	**12,000**
MW-7	11/27/2007	**12,000**	**9,000**	**940**	**13,000**
MW-7	5/12/2008	**7,900**	**11,000**	**830**	**12,000**
MW-7	11/7/2008	**12,000**	**16,000**	**1,100**	**17,000**

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
NMWQCC Groundwater Standard		**10 ug/L**	**750 ug/L**	**750 ug/L**	**620 ug/L**
MW-7	7/8/2009	**9,800**	**8,200**	<100	**12,000**
MW-7	11/5/2009	**9,800**	**7,900**	570	**13,000**
MW-7	5/25/2010	**7,200**	**3,800**	440	**11,000**
MW-7	8/12/2010	**82**	58	9.2	200
MW-7	11/17/2010	**5,200**	**5,500**	76.0	**3,400**
MW-7	2/14/2011	**2,200**	**1,000**	<120	**1,800**
MW-7	5/17/2011	**500**	190	16	180
MW-7	8/9/2011	**81.3**	36.9	5.3	39.4
MW-7	11/9/2011	**26**	16	2.3	20
MW-8	5/17/2007	<1.0	1.9	<1.0	3.7
MW-8	8/9/2007	<1.0	<1.0	<1.0	<2.0
MW-8	11/27/2007	**21.0**	<1.0	<1.0	<2.0
MW-8	5/12/2008	1.4	<1.0	<1.0	<2.0
MW-8	11/7/2008	1.2	<1.0	<1.0	<2.0
MW-8	7/8/2009	<1.0	<1.0	<1.0	<2.0
MW-8	11/5/2009	1.1	<1.0	<1.0	<2.0
MW-9	7/8/2009	**91**	160	6.9	100
MW-9	11/30/2009	<1	<1	<1	<2
MW-9	5/25/2010	<1.0	<1.0	<1.0	<2.0
MW-9	8/12/2010	<0.5	<5.0	<0.5	<1.5
MW-9	11/17/2010	2.4	<5.0	<0.5	<1.5

Notes:
ug/l - micrograms per liter
< indicates result is less than the stated laboratory method detection limit
NMWQCC - New Mexico Water Quality Control Commission
NS - Not Sampled
* - Well was Destroyed
BOLD indicates the result exceeds the NMWQCC Standard
Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8021B

Figure 1

Topographic Map

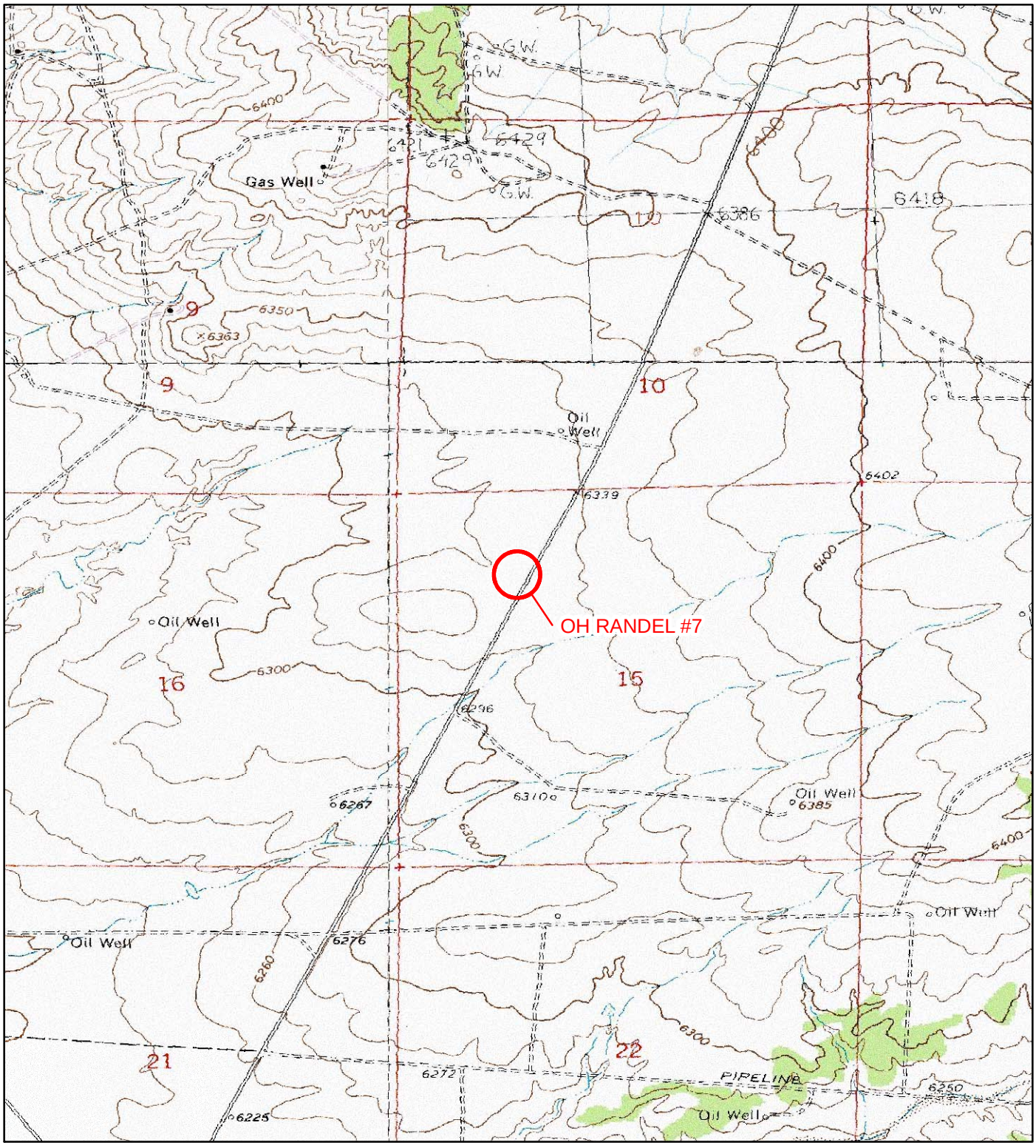


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
OH RANDEL #7
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG01_SL.mxd

Figure 2

Potentiometric Surface Diagrams

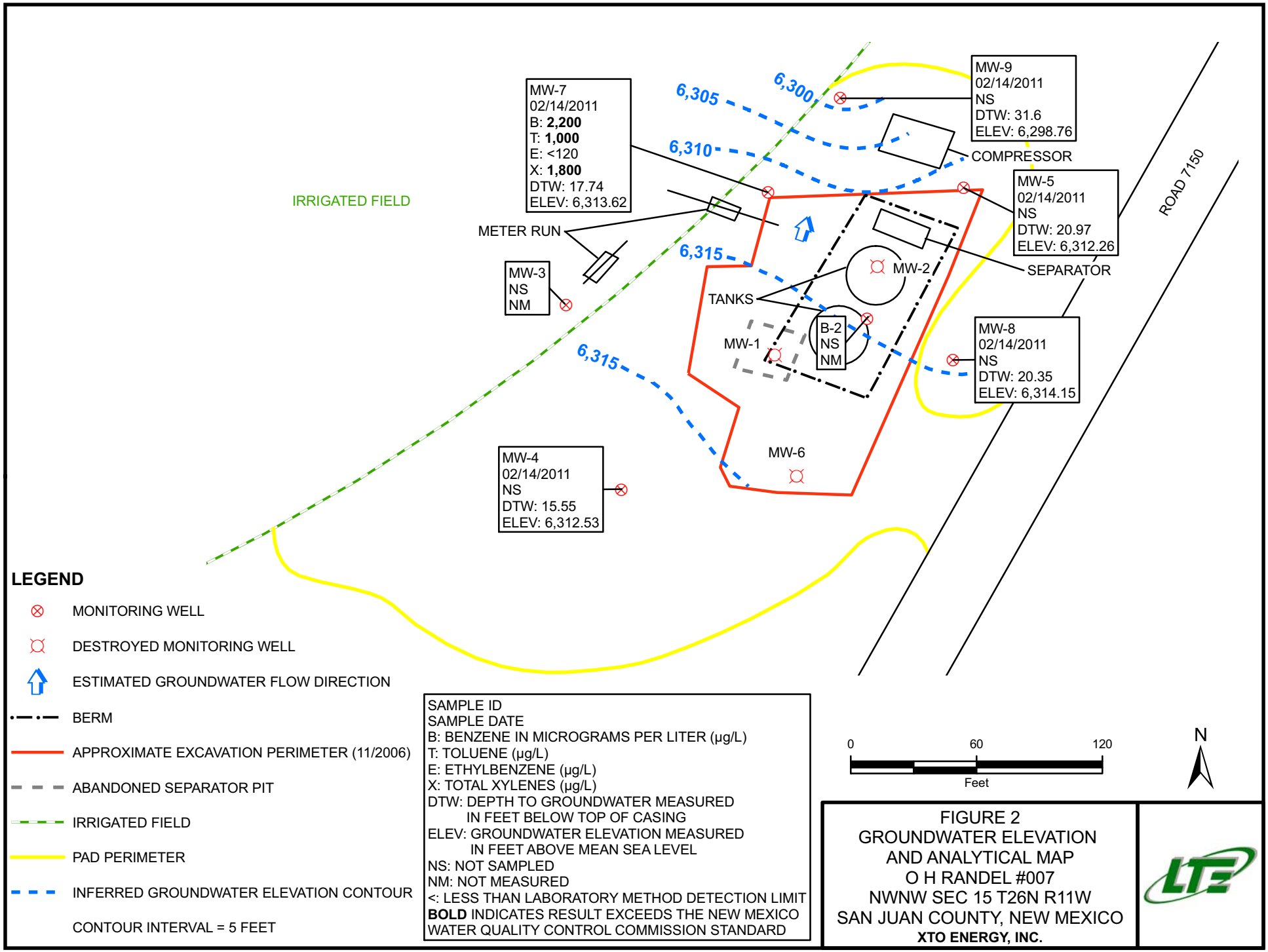


FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL MAP
O H RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG02_GWELEV_GWANALY_2011_Q1.mxd

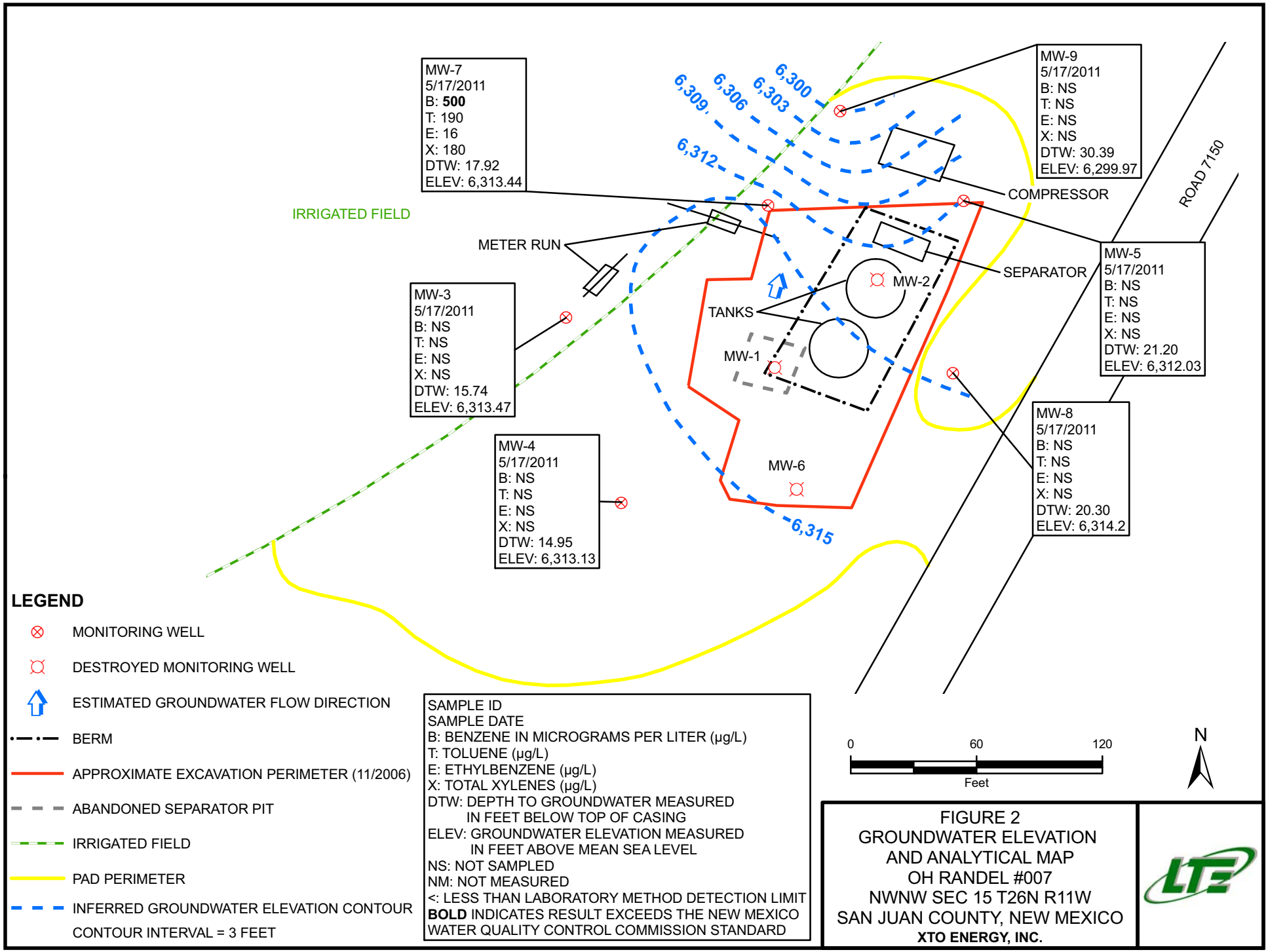
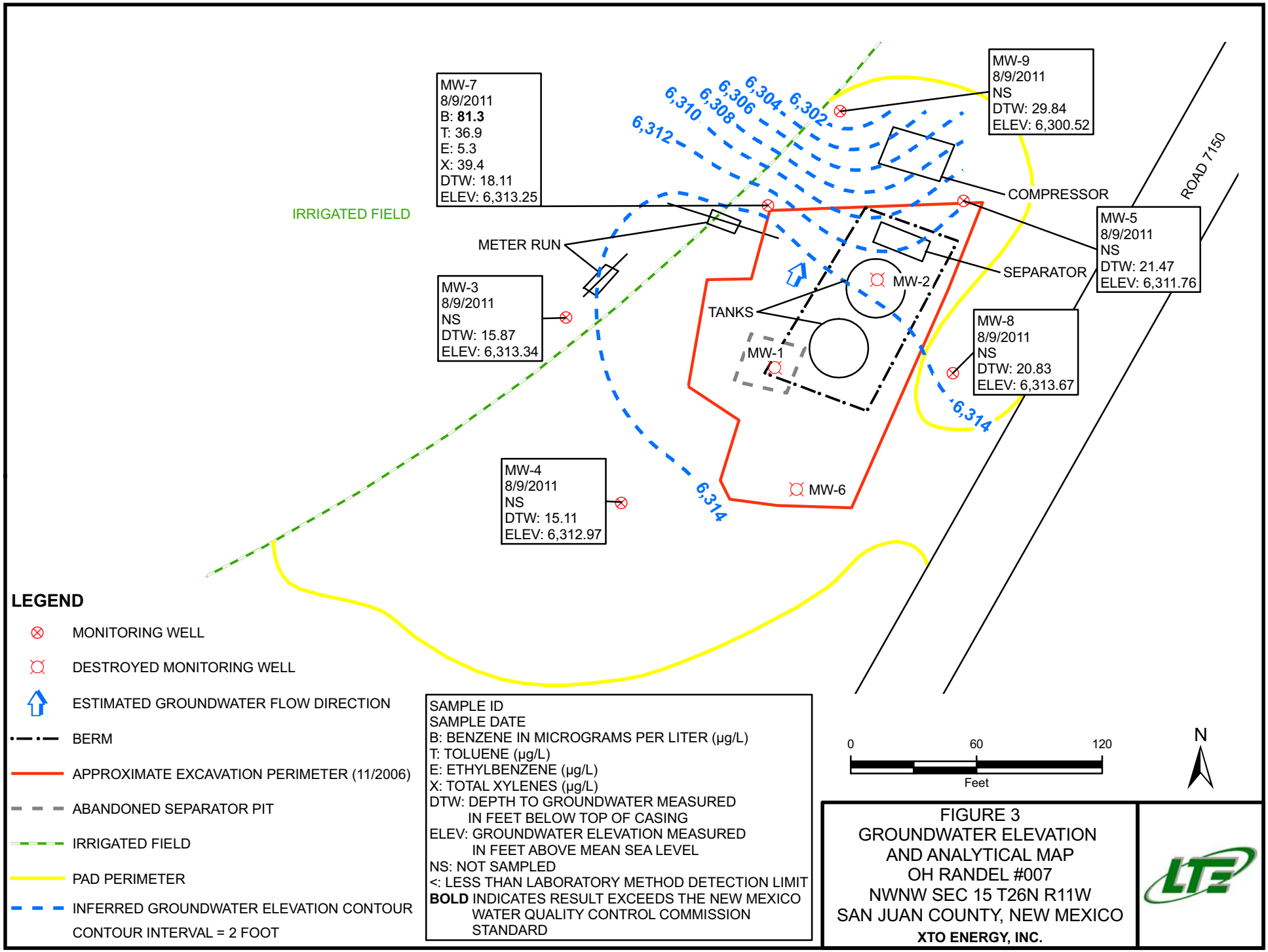


FIGURE 2
GROUNDWATER ELEVATION AND ANALYTICAL MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG02_GWELEV_GWANALY_2011_Q2.mxd


MW-7
8/9/2011
B: 81.3
T: 36.9
E: 5.3
X: 39.4
DTW: 18.11
ELEV: 6,313.25
MW-9
8/9/2011
NS
DTW: 29.84
ELEV: 6,300.52
MW-5
8/9/2011
NS
DTW: 21.47
ELEV: 6,311.76
MW-3
8/9/2011
NS
DTW: 15.87
ELEV: 6,313.34
MW-8
8/9/2011
NS
DTW: 20.83
ELEV: 6,313.67
MW-4
8/9/2011
NS
DTW: 15.11
ELEV: 6,312.97
6,310
6,308
6,306
6,304
6,302
6,312
6,314
6,314
IRRIGATED FIELD
METER RUN
COMPRESSOR
SEPARATOR
TANKS
MW-1
MW-2
MW-6
ROAD 7150
LEGEND
MONITORING WELL
DESTROYED MONITORING WELL
ESTIMATED GROUNDWATER FLOW DIRECTION
BERM
APPROXIMATE EXCAVATION PERIMETER (11/2006)
ABANDONED SEPARATOR PIT
IRRIGATED FIELD
PAD PERIMETER
INFERRED GROUNDWATER ELEVATION CONTOUR
CONTOUR INTERVAL = 2 FOOT
SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD
0
60
120
Feet
N
FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.
P:\XTO Energy\GIS\MXD\012911009\012911009_004_OH_RANDEL_FIG03_GWELEV_GWANALY_2011_Q3.mxd

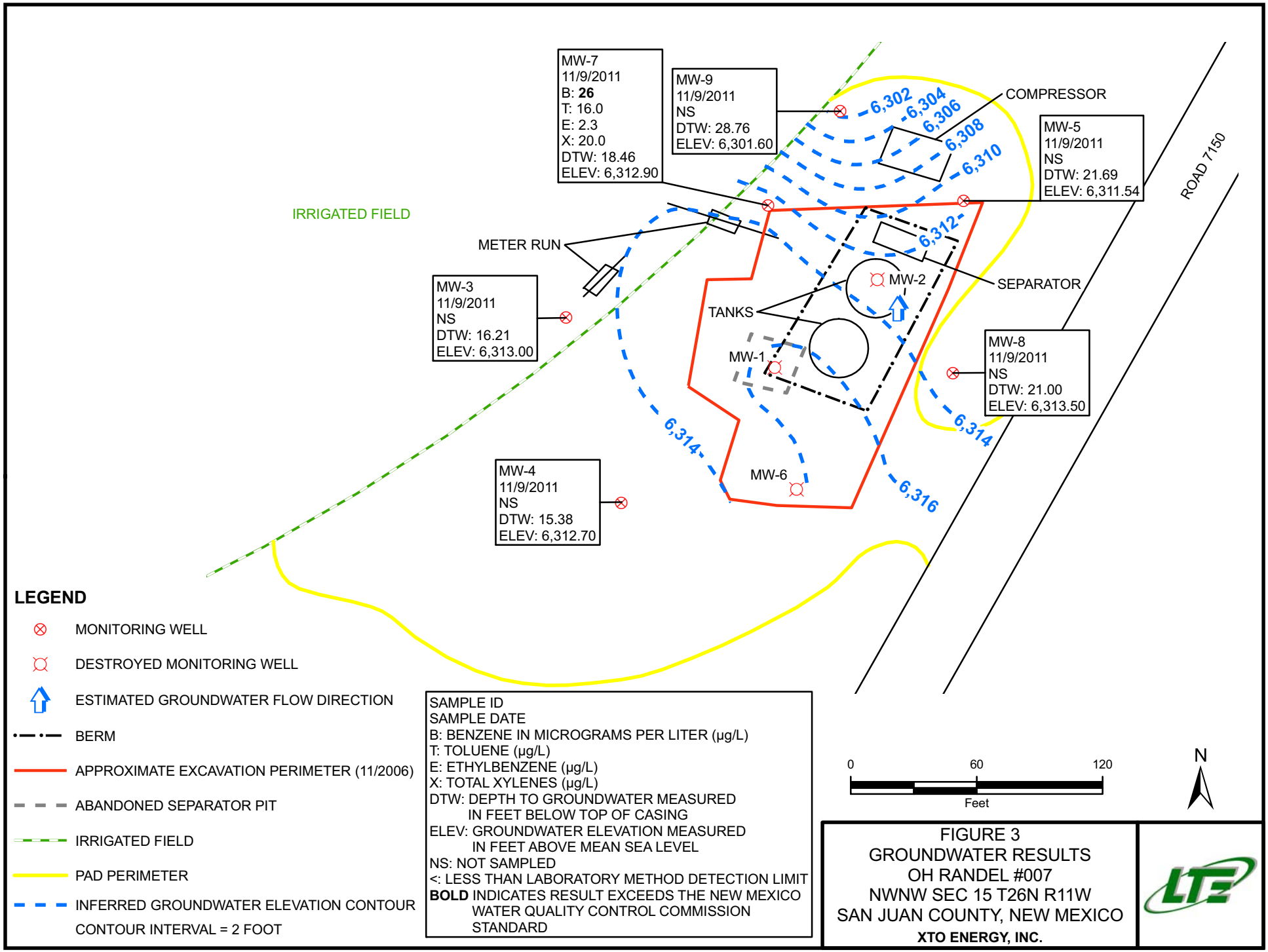

MW-7
11/9/2011
B: 26
T: 16.0
E: 2.3
X: 20.0
DTW: 18.46
ELEV: 6,312.90
MW-9
11/9/2011
NS
DTW: 28.76
ELEV: 6,301.60
COMPRESSOR
MW-5
11/9/2011
NS
DTW: 21.69
ELEV: 6,311.54
ROAD 7150
IRRIGATED FIELD
METER RUN
SEPARATOR
MW-3
11/9/2011
NS
DTW: 16.21
ELEV: 6,313.00
MW-2
TANKS
MW-1
MW-8
11/9/2011
NS
DTW: 21.00
ELEV: 6,313.50
MW-4
11/9/2011
NS
DTW: 15.38
ELEV: 6,312.70
MW-6
6,302
6,304
6,306
6,308
6,310
6,312
6,314
6,316
LEGEND
MONITORING WELL
DESTROYED MONITORING WELL
ESTIMATED GROUNDWATER FLOW DIRECTION
BERM
APPROXIMATE EXCAVATION PERIMETER (11/2006)
ABANDONED SEPARATOR PIT
IRRIGATED FIELD
PAD PERIMETER
INFERRED GROUNDWATER ELEVATION CONTOUR
CONTOUR INTERVAL = 2 FOOT
SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD
0
60
120
Feet
N
FIGURE 3
GROUNDWATER RESULTS
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.
P:\XTO Energy\GIS\MXD\012911009\012911009_004_OH_RANDEL_FIG03_GWELEV_GWANALY_2011_Q4.mxd

Figure 3-13

Completion Diagrams
And
Borehole Logs

FIGURE 8

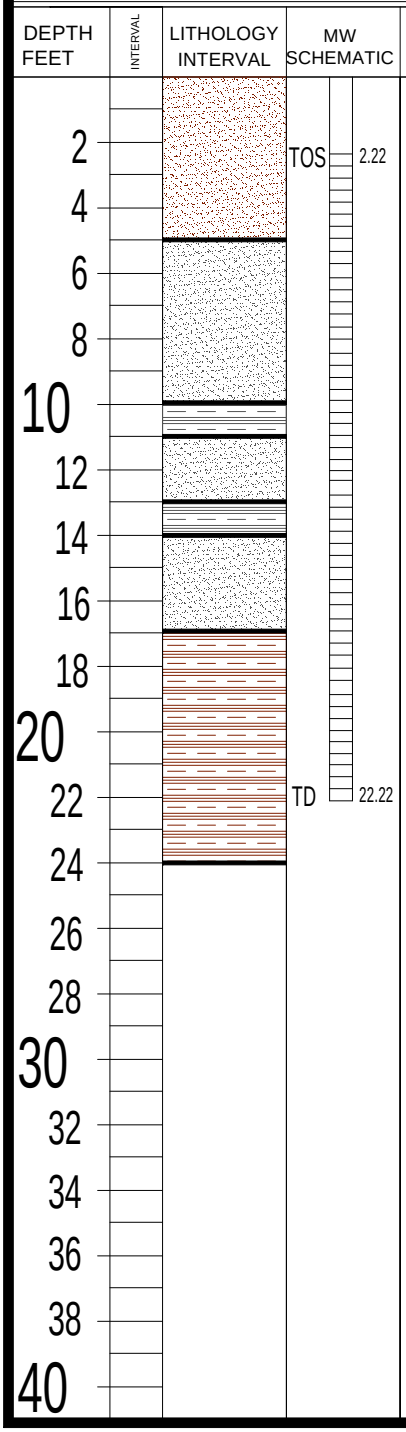
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	3/22/02
DATE FINISHED	3/22/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 240 FT., S76.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 0.15 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND & ROCK AGGREGATE, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 5.0 FT. BELOW GRADE).

LIGHT TO MEDIUM GRAY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, STRONG HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (5.0 - 10.0 FT. BELOW GRADE).

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (10.0 - 11.0 FT. BELOW GRADE).

SAME AS 5.0 - 10.0 FT. INTERVAL (11.0 - 13.0 FT. BELOW GRADE).

SAME AS 10.0 - 11.0 FT. INTERVAL (13.0 - 14.0 FT. BELOW GRADE).

SAME AS 5.0 - 10.0 FT. INTERVAL EXCEPT MOIST TO WET (14.0 - 17.0 FT. BELOW GRADE).

GW DEPTH ON 3/25/02 = 16.68 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, APPARENT STRONG HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 24.0 FT. BELOW GRADE).

NOTE:
- SAND.
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 0.15 ft. above grade to 2.22 ft. below grade, 0.010 slotted screen between 2.22 to 22.22 feet below grade, sand packed annular to grade.

DRAWING: RANDEL-7-MW1.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 9

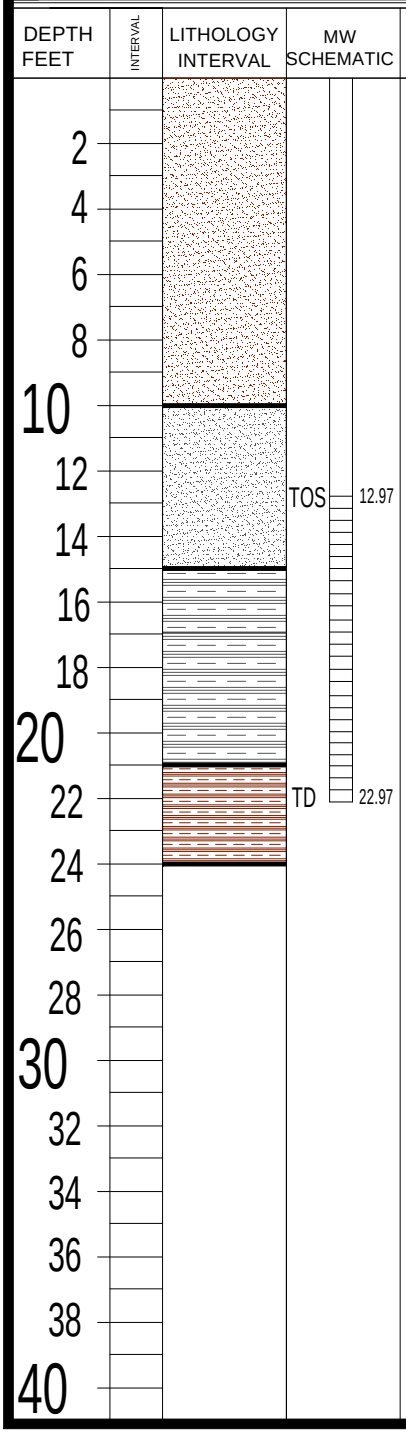
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	274 FT., S87.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.63 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 10.0 FT. BELOW GRADE).

LIGHT TO MEDIUM GRAY SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, STRONG HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (10.0 - 15.0 FT. BELOW GRADE).

▼ GW DEPTH ON 4/22/02 = 16.69 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (15.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 24.0 FT. BELOW GRADE).

NOTE:

- SAND.
- SILTY SAND (HC IMPACTED).
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 1.63 ft. above grade to 12.97 ft. below grade, 0.010 slotted screen between 12.97 to 22.97 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW2.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 10

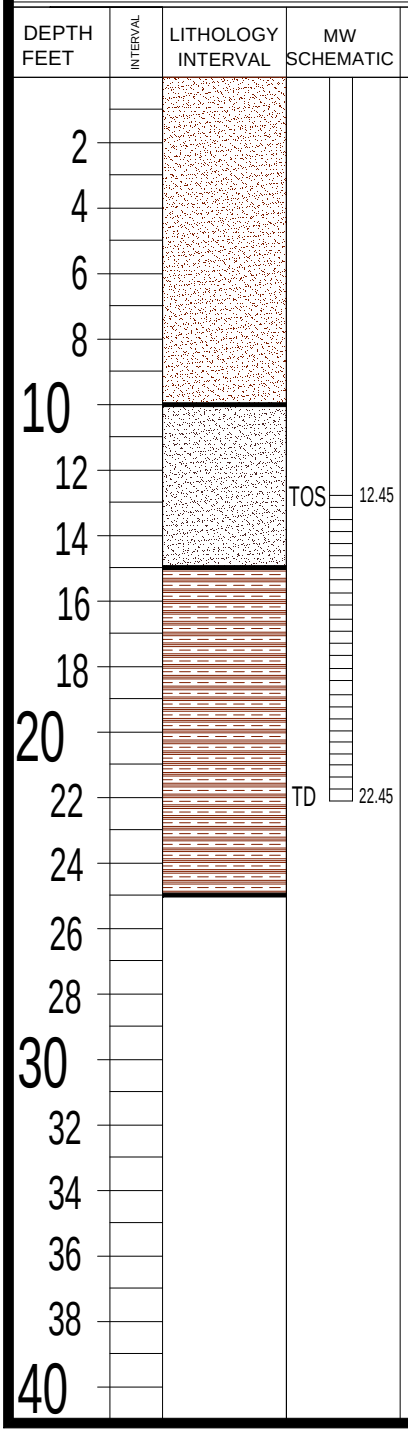
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT: XTO ENERGY INC.
LOCATION NAME: RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: 158 FT., S80.5E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.15 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 10.0 FT. BELOW GRADE).

MODERATE TO DARK YELLOWISH BROWN SILTY SAND, COHESIVE, SLIGHTLY MOIST TO WET, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (10.0 - 15.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 14.11 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (15.0 - 25.0 FT. BELOW GRADE).

NOTE:
- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 2.15 ft. above grade to 12.45 ft. below grade, 0.010 slotted screen between 12.45 to 22.45 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW3.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 11

BLAGG ENGINEERING, INC.

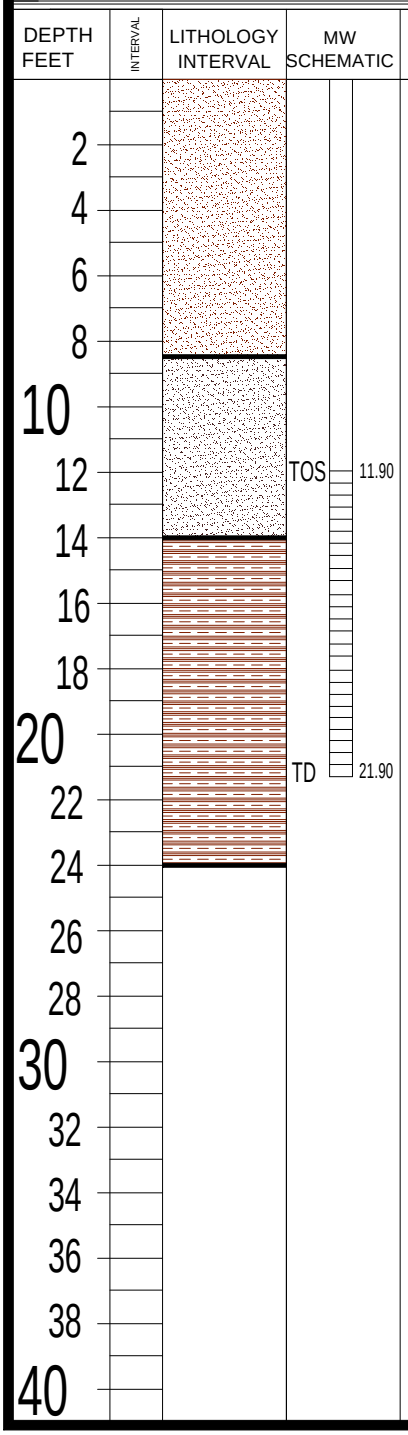
P.O. BOX 87
BLOOMFIELD, NM 87413

(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	210 FT., S56E FEET FROM WELL HEAD.

BORING #.....	BH - 4
MW #.....	4
PAGE #.....	4
DATE STARTED	4/09/02
DATE FINISHED	4/09/02
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.60 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 8.5 FT. BELOW GRADE).

MODERATE TO DARK YELLOWISH BROWN SILTY SAND, COHESIVE, SLIGHTLY MOIST TO WET, FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (8.5 - 14.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 15.03 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, WET TO SATURATED, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (14.0 - 24.0 FT. BELOW GRADE).

NOTE:

- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 1.60 ft. above grade to 11.90 ft. below grade, 0.010 slotted screen between 11.90 to 21.90 feet below grade, sand packed annular to 8 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW4.SKF	DATE: 10/19/05	DWN BY: NJV

FIGURE 12

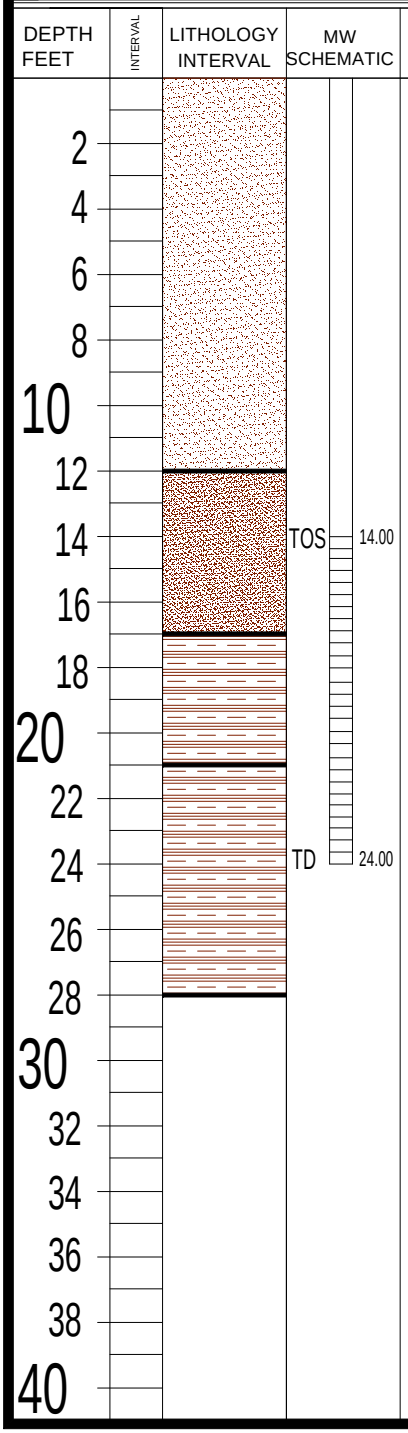
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

BORING #.....	BH - 5
MW #.....	5
PAGE #.....	5
DATE STARTED	4/19/02
DATE FINISHED	4/19/02
OPERATOR.....	JCB
PREPARED BY	NJV

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	312 FT., N86E FEET FROM WELL HEAD.



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.00 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 12.0 FT. BELOW GRADE).

MODERATE BROWN SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (12.0 - 17.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 18.11 FT. (APPROX.) FROM GROUND SURFACE.

MEDIUM BROWN TO LIGHT OLIVE GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (17.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 28.0 FT. BELOW GRADE).

NOTE:

- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 1.0 ft. above grade to 14.00 ft. below grade, 0.010 slotted screen between 14.00 to 24.00 feet below grade, sand packed annular to 12 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW5.SKF | DATE: 10/19/05 | DWN BY: NJV

FIGURE 13

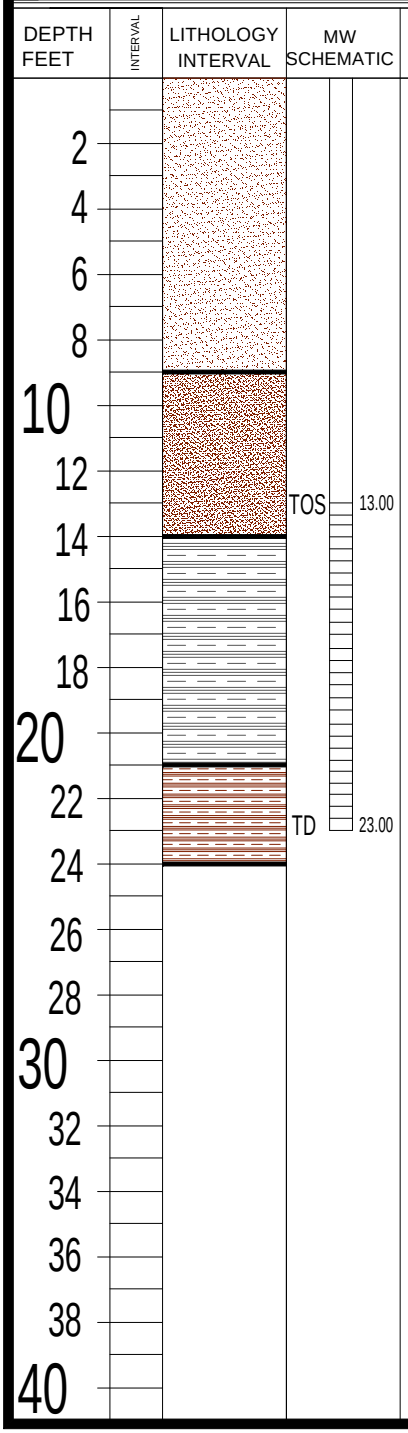
BLAGG ENGINEERING, INC.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

CLIENT:	XTO ENERGY INC.
LOCATION NAME:	RANDEL, O.H. #7 - SEP. PIT, UNIT D, SEC. 15, T26N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	266 FT., S65.5E FEET FROM WELL HEAD.

BORING #.....	BH - 6
MW #.....	6
PAGE #.....	6
DATE STARTED	4/19/02
DATE FINISHED	4/19/02
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.

MODERATE TO DARK YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, LOOSE TO FIRM, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTINGS (0.0 - 9.0 FT. BELOW GRADE).

MODERATE BROWN TO LIGHT OLIVE GRAY SILTY SAND, NON COHESIVE, DRY TO SLIGHTLY MOIST, DENSE, NO APPARENT HC ODOR DETECTED PHYSICALLY WITHIN AUGER CUTTING (9.0 - 14.0 FT. BELOW GRADE).

GW DEPTH ON 4/22/02 = 16.51 FT. (APPROX.) FROM GROUND SURFACE.

LIGHT OLIVE TO MEDIUM GRAY SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, SLIGHTLY MOIST, APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (14.0 - 21.0 FT. BELOW GRADE).

LIGHT DUSKY BROWN SILTY CLAY TO CLAY, MEDIUM PLASTIC, STIFF, DRY, SLIGHT APPARENT HC ODOR DETECTED PHYSICALLY WITHIN CUTTINGS (21.0 - 24.0 FT. BELOW GRADE).

NOTE:

- SAND.
- SILTY SAND.
- SILTY CLAY TO CLAY.

TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

Monitor well consist of 2 inch PVC piping - casing from 2.00 ft. above grade to 13.00 ft. below grade, 0.010 slotted screen between 13.00 to 23.00 feet below grade, sand packed annular to 10 ft. below grade, then filled with clean native soil to surface.

DRAWING: RANDEL-7-MW6.SKF	DATE: 10/19/05	DWN BY: NJV

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: 1
Well #: MW-7
Page: 1 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.508' N, 107º 59.720' W
GWL Depth: 19'
Drilled By: Enviro-Drill
Well Logged By: Ashley Ager
Date Started: 05/01/07
Date Completed: 05/01/07

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
0	1	0-5'	cuttings	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
5	2	5-7'	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
10	3	10-12	split spoon	10-10.5: brown, unconsolidated, poorly sorted sand and gravel, damp 10.5-12: whitish-brown medium sand, well sorted, unconsolidated, dry	0 0	Easy
15	4	15-17	split spoon	15-15.5: reddish brown coarse sand, poorly sorted, damp 15.5-16.5: brown clay with white chalkish material on top 16.5-17: reddish brown silty sand, coarse, poorly sorted, damp	7.2 0 0	Easy
20						

Comments:

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: 1
Well #: MW-7
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 59.736' W
GWL Depth: 16.5
Drilled By: Enviro-Drill
Well Logged By: Ashley Ager
Date Started: 05/01/07
Date Completed: 05/01/07

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	5	20-22	split spoon	20-20.4: reddish brown, coarse sand, poorly sorted, damp	1.3	Easy
				20.4-20.8: gray coarse sand, moist, poorly sorted	1.0	
				20.8-21: saturated gray coarse sand, poorly sorted	0.5	
25				21-22: reddish gray clay	0	
	6	25-16	split spoon	Variegated reddish brown clay, dry	0	Easy
30	7	30-32	split spoon	Variegated reddish brown clay, dry	0	Easy
35						
40						

Comments: Very thin saturated layer at approximately 20'. Stiff clay is present below that. Wet layer probably represents a small perched aquifer atop the clay.

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: 1
Well #: MW-8
Page: 1 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 59.736' W
GWL Depth: 16.5
Drilled By: Enviro-Drill
Well Logged By: Ashley Ager
Date Started: 05/01/07
Date Completed: 05/01/07

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
0	1	0-5'	cuttings	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
5	2	5-7'	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
10	3	10-11.8	split spoon	brown, unconsolidated, poorly sorted sand and gravel, damp	0	Easy
15	4	15-16.9	split spoon	15-15.8: brown, unconsolidated, poorly sorted sand and gravel 15.8-16.4: moist, grayish brown sandy silt 16.4-16.9: coarse, poorly sorted, grayish brown sand, wet, some HC odor	0 52.8 319	Easy Easy Easy
20						

Comments:

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: 1
Well #: MW-8
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.522' N, 107º 59.736' W
GWL Depth: 16.5
Drilled By: Enviro-Drill
Well Logged By: Ashley Ager
Date Started: 05/01/07
Date Completed: 05/01/07

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	5	20-21.8	split spoon	20-20.4: reddish brown sand, coarse, poorly sorted, some gravel content, moist	78.9	Easy
				20.4-21.8: variegated reddish gray stiff clay, moist	0.2	Easy
25	6	25-27	split spoon	Variegated reddish brown clay wet at top, dry at bottom	0	Easy
30	7	30-32	split spoon	30-30.7: variegated reddish brown clay	0	Steady
				30.7-31.8: greenish gray silty sand, coarse, poorly sorted, consolidated, dry	0	
35						
40						

Comments: Very thin saturated layer at approximately 16.5'. Stiff clay is present below that. Wet layer probably represents a small perched aquifer atop the clay.

Geologist Signature *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: B-1
Well #: MW-9

Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.531' N, 107º 59.731' W
GWL Depth: 16'
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/07/09

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
0		0-5	cuttings	brown, poorly sorted coarse sand and gravel, road base		easy
5	1	5-7'	split spoon, 17"	0-13.5": 7.5 YR 5/6 strong brown sp, poorly sorted coarse sand, sub angular, dry, unconsolidated 13.5 - 17": 10YR 6/1 gray, sandy shale, crumbly	0	34 Blows
10	2	10-12	split spoon, 22"	10 YR 5/3 brown sp, poorly sorted, coarse sand, sub angular, dry	0	30 Blows
15	3	15-17	split spoon, 18"	0-2": same as above 2 - 16": 10 YR 5/3 brown sm, poorly sorted, medium sand w/ higher silt content, damp	0	25 Blows
20						

Comments:

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: B-1
Well #: MW-9
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29.531' N, 107º 59.731' W
GWL Depth: 16'
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/07/09

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	4	20-22	split spoon, 20"	10 YR 3/2 v. dark grayish brown CL, clay some coarse sand at top, damp	0.1	68 Blows Wet rod
25	5	25-27	split spoon, 18"	10 YR 7/2 light gray CL, clay interbedded with 10 yr 4/2 dark grayish brown clays, iron discoloration, dry	0	58 Blows
30	6	30-32	split spoon, 18"	same as above, dry	0	76 Blows
35	7	35-37'	split spoon, 15"	same as above, dry	0	41 Blows
40						

Comments: Drilling stopped at 35' based on previous knowledge of depth in existing monitoring wells. Identified damp sandy layer at 16', and hole is dry after drilling to 37'. Will let sit and see if water fills in. 3" of water in hole after 30 mins. Set well.

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: B-2
Well #:
Page: 1 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29' 30.46" N, 107º 59' 44.2" W
GWL Depth: Dry Hole
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/08/09

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
0		0-5'	cuttings	brown poorly sorted coarse sand and gravel - road base		easy
5	1	5-7'	split spoon, 11"	2.5 Y 6/1 Gray coarse sand sp, subrounded, backfill	0	Easy, 26 Blows
10	2	10-12	split spoon, 16"	2.5 Y 4/2 dark grayish brown, fine sand, poorly sorted, lots of fines	0	25 Blows
15	3	15-17	split spoon, 10"	2.5 Y 4/1 Dark Gray, fine silty sand, about 5% c. content, damp, backfill	0	12 Blows Wet rod
20						

Comments:

Geologist Signature: *Ashley L. Ager*

RECORD OF SUBSURFACE EXPLORATION

LodeStar Services
P.O. Box 4465
Durango, CO 81302
303-917-6288

Borehole #: B-2
Well #:
Page: 2 of 2
Project Number:
Project Name: XTO Ground Water
Project Location: OH Randel #7

Borehole Location: 36º 29' 30.46" N, 107º 59' 44.2" W
GWL Depth: dry hole
Drilled By: Kelly Padilla
Well Logged By: Ashley Ager
Date Started: 07/07/09
Date Completed: 07/08/09

Drilling Method: Hollow Stem Auger
Air Monitoring Method: PID

Depth (feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description	Air Monitoring	Drilling Conditions
20	4	20-22	split spoon, 19"	5 YR 3/2 Dark reddish brown CL, Clay, damp	0.1	59 Blows
25	5	25-27	split spoon, 16.5"	0 - 2": same as above 2-16.5": 10YR 6/2 light brownish gray, silty clay, dry	0	66 Blows
30	6	30-32	split spoon, 14"	same as above, damp	0	48 Blows
35	7	35-37'	split spoon, 9"	same as above, dry Stop to see if it fills	11.2	45 Blows
40						

Comments: Drilling stopped at 35' based on previous knowledge of depth in existing monitoring wells. Identified damp sandy layer at ~16' and hole is dry after drilling to 37'. Let sit for 2 hours and did not fill in. Let sit overnight. At 11:15 am on 07/08/09, hole is still dry. Plug.

Geologist Signature: *Ashley L. Ager*

Attachment 1

Blagg Engineering, Inc. Pit Closure Report (2002)

3004524749 36.49193/107.99632

CLIENT: XTO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: _____
C.O.C. NO: 9796

FIELD REPORT: PIT CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: O.H. RANDEL WELL #: 7 TYPE: ABAN. SEP.
QUAD/UNIT: D SEC: 15 TWP: 26N RNG: 11W PM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: 1150'N/1150'W NW/NW CONTRACTOR:

DATE STARTED: 3/12/02
DATE FINISHED: _____
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. NA FT. x NA FT. x NA FT. DEEP. CUBIC YARDAGE: NA
DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: _____
LAND USE: RANGE - BLM LEASE: _____ FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 239 FT. S75E FROM WELLHEAD.
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 0 NMOCD TPH CLOSURE STD: 5000 PPM

OVM CALIB. READ. 52.7 ppm
OVM CALIB. GAS = 100 ppm RF = 0.52
TIME: 11:48 (am)/pm DATE: 3/12/02

SOIL AND EXCAVATION DESCRIPTION:

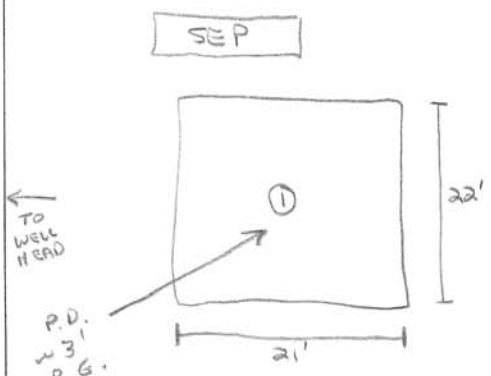
SOIL TYPE: (SAND) / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER _____
SOIL COLOR: MED. GRAY
COHESION (ALL OTHERS): (NON COHESIVE) / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE
CONSISTENCY (NON COHESIVE SOILS): (LOOSE) / (FIRM) / DENSE / VERY DENSE
~~PLASTICITY (CLAYS)~~: NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC
~~DENSITY (COHESIVE CLAYS & SILTS)~~: SOFT / FIRM / STIFF / VERY STIFF / HARD
MOISTURE: DRY / SLIGHTLY MOIST / (MOIST) / WET / SATURATED / SUPER SATURATED
DISCOLORATION/STAINING OBSERVED: (YES) / NO EXPLANATION - BET. 4-6' BELOW GRADE
HC ODOR DETECTED: (YES) / NO EXPLANATION - MED. GRAY SAND (STRONG)
SAMPLE TYPE: (GRAB) / COMPOSITE - # OF PTS. -
ADDITIONAL COMMENTS: CONDUCTED SAMPLING WITH HAND SHOVEL.

FIELD 418.1 CALCULATIONS

SAMP. TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE
0 FT

PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 6'	1,015
2 @	
3 @	
4 @	
5 @	

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
(1) @ 6'	TPH (8015B)	1130
"	BTEX (8021B)	"

PIT PROFILE

P.D. = PIT DEPRESSION; B.G. = BELOW GRADE
T.H. = TEST HOLE; ~ = APPROX.; B = BELOW

TRAVEL NOTES: CALLOUT: 3/12/02 - MORN. ONSITE: 3/12/02 - MORN.

revised: 02/27/02 bei1005C.skd

Attachment 2

Lodestar Services Remediation Work Plan (2006)

Lodestar Services, Inc.
P.O. Box 3861, Farmington, NM 87499-3861, 505-334-2791

August 15, 2006

Mr. Steve Austin
Navajo Nation EPA
PO Box 1999
Shiprock, NM 87420

CERTIFIED MAIL: 7004 1160 0007 4952 1517

RE: OH Randel #7

Dear Mr. Austin,

XTO Energy Inc. (XTO) has contracted Lodestar Services, Incorporated (Lodestar) to oversee groundwater monitoring and remedial activities at the OH Randel #7 natural gas production well. It has come to our attention that the well is located on land regulated by the Navajo Nation Environmental Protection Agency (NNEPA). Previous regulatory correspondence has been with the New Mexico Oil Conservation Division (NMOCD). An annual comprehensive report was submitted to the NMOCD in January 2006 and is included for your review.

The OH Randel #7 is located in Unit D of Section 16 of Township 26N, Range 11W, and includes a former oil-water-separator pit that may have affected shallow groundwater. Six groundwater monitoring wells were previously installed on the site to investigate groundwater quality. One of the wells, MW-6, contains free-phase hydrocarbons. Previously MW-1 and MW-2 contained free-phase hydrocarbons. MW-1 is located in the center of the former pit. MW-2 is directly adjacent to the pit, and MW-6 is located down gradient of the pit. The annual report included herein has several groundwater contour maps provided by Blagg Engineering that indicate varying groundwater flow directions. Navajo Agricultural Products Incorporated (NAPI) conducts irrigation adjacent to the site and may influence groundwater flow direction.

The following steps are proposed remove impacted soil and free-phase hydrocarbons:

1. Excavate affected soil associated with historical operations from the former pit. Impacted soil will be disposed at a local land farm permitted by the NMOCD. Soil headspace gas will be monitored with a photo-ionization detector (PID) to determine extent of impacted soil during excavation according to the NMOCD Guidelines for headspace analysis. Soil above 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons will be removed. Laboratory analyses of composite samples collected from the sidewalls of the excavation will be used to document that impacted soil has been removed.
2. Erect temporary fencing around the excavated site and remove impacted water and free-phase hydrocarbons from the pit.

3. Once the free-phase hydrocarbons have been removed, backfill the excavation site with clean soil.
4. Replace groundwater-monitoring wells as necessary.
5. Install additional down gradient monitoring wells as necessary to characterize impacted groundwater.
6. Remove free phase hydrocarbons from groundwater, then sample groundwater-monitoring wells for benzene, toluene, ethylbenzene and total xylenes (BTEX) on a quarterly basis to monitor progress at the site.

Following completion of the above tasks, XTO will provide a letter report describing onsite activities and analytical results. XTO wishes to complete this work as soon as practical and will contact you to schedule activities. Should you have any questions or require additional information, please do not hesitate to contact Lisa Winn of XTO at (505) 324-1090 or you can call me at (505) 334 2791.

Sincerely,
LODESTAR SERVICES, INC

Martin Nee

Cc: Lisa Winn, XTO, w/o enclosures
Kim Champlin, XTO, w/o enclosures
Ashley Ager, LSI, w/o enclosures
Glenn Von Gonten, NMOCD
File
Attachments: Annual Report

cc Mr Jim Walker USEPA

Attachment 3

Lodestar Services Report of Excavation and Sampling (2007)

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

January 29, 2007

Mr. William Freeman
Navajo Nation Environmental Protection Agency
PO Box 1999
Shiprock, NM 87420

RE: Report of Excavation and Sampling at OH Randel #7

Dear Mr. Freeman:

XTO Energy Inc. (XTO) operates the OH Randel #7 natural gas production well located in Unit D of Section 16 of Township 26N, Range 11W, San Juan County, New Mexico. A former oil-water-separator pit may have impacted soil and shallow groundwater at the site. On August 15, 2006, XTO submitted a work plan to the Navajo Nation Environmental Protection Agency (NNEPA) describing planned remedial activities to investigate and remove impacted soil. XTO contracted Lodestar Services, Incorporated (Lodestar) to direct excavation activities according to the August 15 work plan. Core Oilfield Services completed the excavation, backfilling, and transportation of impacted soil to Envirotech Inc.'s land farm. Clean backfill was purchased from Moss Excavation's gravel pit located on highway 550 in Bloomfield, NM.

On November 13-27, 2006, a geologist from Lodestar was present during excavation of impacted soil at the OH Randel #7. During excavation, field screening according to the New Mexico Oil Conservation Division's (NMOCD) guidelines for headspace analysis was conducted to determine extent of impacted soil by collecting samples from the sidewalls and floor of the excavated pit. Following headspace screening and excavation, composite samples from the sidewalls and floor of the excavation were collected for laboratory analysis. Samples were collected where field screening indicated the highest concentrations of hydrocarbons. Compositing included placing four aliquots of soil from a given wall or floor into a one-gallon plastic bag. The soil within the bag was thoroughly mixed before filling a four-ounce glass jar. The sample was immediately placed on ice, and maintained under strict chain-of-custody until delivered to Envirotech Laboratories in Farmington, NM. Envirotech Laboratories analyzed the samples for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (USEPA) methods 8021 and 8015, respectively. The results of sample analyses are as follows:

	GRO (ppm)	DRO (ppm)	TPH (ppm)	Benzene (ppb)	Toluene (ppb)	Ethyl benzene (ppb)	P&M Xylenes (ppb)	O Xylenes (ppb)	Total BTEX (ppb)
NMOCD Standard			100	10,000					50,000
North Excavation North Wall	2.6	3.6	6.2	2.2	20.3	39.1	374	64.8	500
North Excavation East Wall	1080	266	1350	518	3230	3290	9590	3610	20240

	GRO (ppm)	DRO (ppm)	TPH (ppm)	Benzene (ppb)	Toluene (ppb)	Ethyl benzene (ppb)	P&M Xylenes (ppb)	O Xylenes (ppb)	Total BTEX (ppb)
NMOCD Standard			100	10,000					50,000
North Excavation West Wall	8.0	ND	8.0	2.0	746	889	2170	979	4790
North Excavation Floor	3.6	ND	3.6	10.5	65.9	119	619	202	1020
South Excavation East Wall	5.2	15.0	20.2	7.4	50.7	16.7	78.6	37.0	190
South Excavation West Wall	0.5	0.4	0.9	3.3	9.1	19.6	84.7	28.4	145
South Excavation Floor	ND	ND	ND	ND	4.4	7.7	24.5	5.3	41.9
South Excavation South Wall	ND	ND	ND	ND	1.9	7.9	24.8	8.7	43.3

GRO: Gasoline Range Organics; DRO: Diesel Range Organics;
ND: Not Detected in sample; ppm: parts per million; ppb: parts per billion

Approximately six thousand eight hundred and eighty two cubic yards of soil were removed for treatment to the land farm. Lodestar and XTO met with the USEPA and the NNEPA on November 27, 2006 at the job site and received permission to backfill the excavation based on the above results.

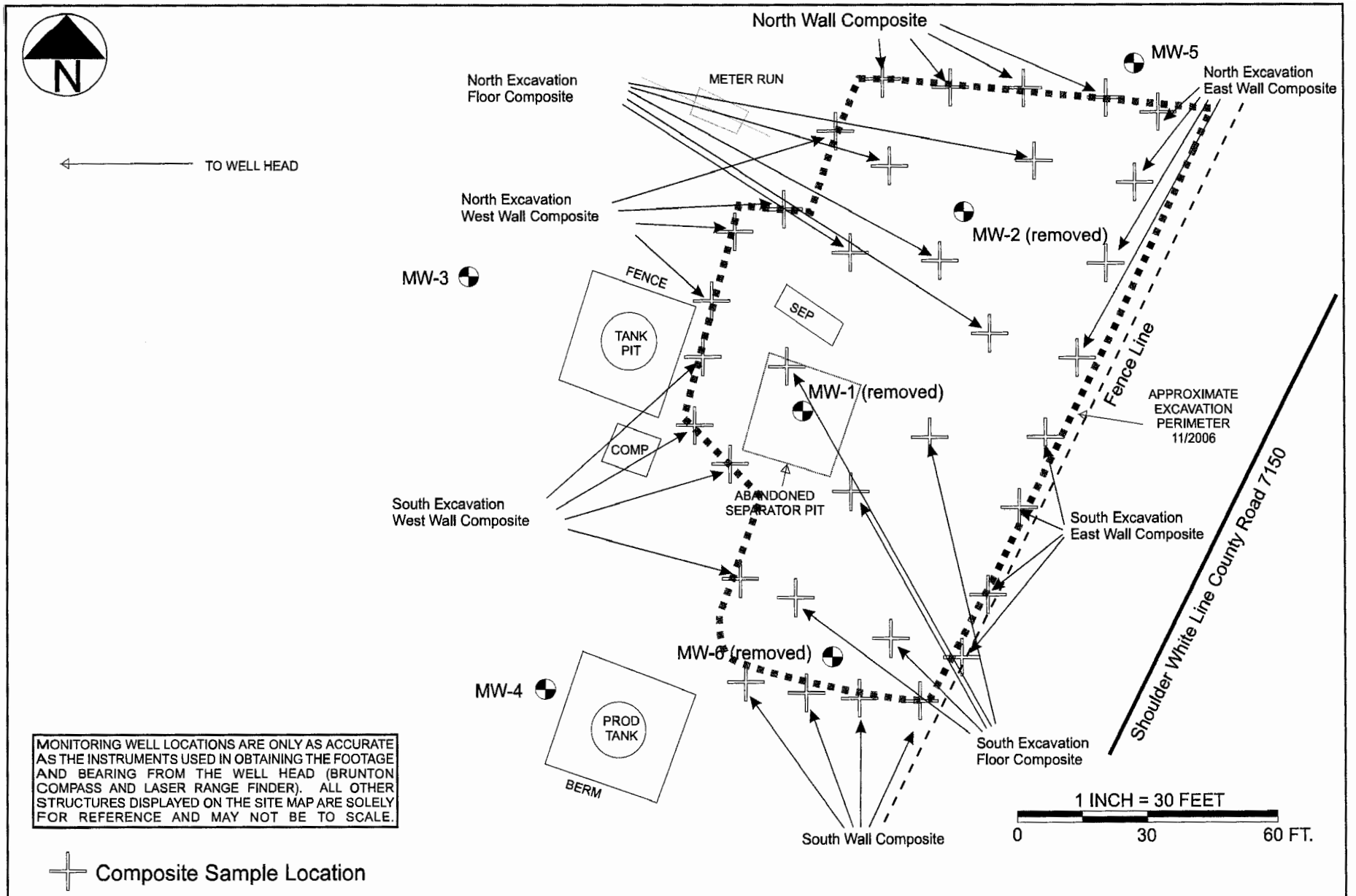
Six groundwater monitoring wells were previously installed on the site to investigate groundwater quality. Three of the wells, MW-1, MW-2, and MW-6 were removed during excavation activities.

Laboratory reports and Bill-of-Lading copies are attached. Please contact Lisa Winn of XTO at (505) 324-1090 with any questions that may arise.

Sincerely,
Lodestar Services, Inc.

Martin Nee

Cc: Jim Walker, USEPA
Lisa Winn, XTO Energy
Kim Champlin, XTO Energy
Ashley Ager, Lodestar Services



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	OH RANDEL #7 NW/4 NW/4 SEC. 15, T26N, R11W SAN JUAN COUNTY, NEW MEXICO	PROJECT: XTO Excavation DRAWN BY: MJN REVISED: 01/29/07	Composite Sample Location Map 1/29/2007

Attachment 4

2011 Laboratory Reports

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Thursday February 17, 2011

Report Number: L501726
Samples Received: 02/15/11
Client Project:

Description: OH Randel 7

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

February 17, 2011

ESC Sample # : L501726-01

Date Received : February 15, 2011
Description : OH Randel 7

Site ID : OH RANDEL 7

Sample ID : RANDEL MW-7

Project # :

Collected By :
Collection Date : 02/14/11 15:42

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	2.2	0.012	mg/l	8021B	02/16/11	25
Toluene	1.0	0.12	mg/l	8021B	02/16/11	25
Ethylbenzene	BDL	0.012	mg/l	8021B	02/16/11	25
Total Xylene	1.8	0.038	mg/l	8021B	02/16/11	25
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	98.7		% Rec.	8021B	02/16/11	25

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 02/17/11 15:36 Printed: 02/17/11 15:37

Summary of Remarks For Samples Printed
02/17/11 at 15:37:10

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L501726-01 Account: XTORNM Received: 02/15/11 08:30 Due Date: 02/22/11 00:00 RPT Date: 02/17/11 15:36

ESC LAB SCIENCES
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L501726

February 17, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG521811	02/16/11 14:47
Ethylbenzene	< .0005	mg/l			WG521811	02/16/11 14:47
Toluene	< .005	mg/l			WG521811	02/16/11 14:47
Total Xylene	< .0015	mg/l			WG521811	02/16/11 14:47
a,a,a-Trifluorotoluene(PID)		% Rec.	99.86	55-122	WG521811	02/16/11 14:47

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0500	100.	79-114	WG521811
Ethylbenzene	mg/l	.05	0.0494	98.7	80-116	WG521811
Toluene	mg/l	.05	0.0503	101.	79-112	WG521811
Total Xylene	mg/l	.15	0.149	99.2	84-118	WG521811
a,a,a-Trifluorotoluene(PID)				99.27	55-122	WG521811

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0540	0.0500	108.	79-114	7.53	20	WG521811
Ethylbenzene	mg/l	0.0533	0.0494	106.	80-116	7.63	20	WG521811
Toluene	mg/l	0.0537	0.0503	107.	79-112	6.40	20	WG521811
Total Xylene	mg/l	0.161	0.149	107.	84-118	7.58	20	WG521811
a,a,a-Trifluorotoluene(PID)				99.22	55-122			WG521811

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.119	0.0740	.05	90.8	35-147	L501758-02	WG521811
Ethylbenzene	mg/l	0.0723	0.0250	.05	94.6	39-141	L501758-02	WG521811
Toluene	mg/l	0.0562	0.00520	.05	102.	35-148	L501758-02	WG521811
Total Xylene	mg/l	0.164	0.0120	.15	102.	33-151	L501758-02	WG521811
a,a,a-Trifluorotoluene(PID)					100.5	55-122		WG521811

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.120	0.119	92.7	35-147	0.780	20	L501758-02	WG521811
Ethylbenzene	mg/l	0.0722	0.0723	94.5	39-141	0.0500	20	L501758-02	WG521811
Toluene	mg/l	0.0553	0.0562	100.	35-148	1.73	20	L501758-02	WG521811
Total Xylene	mg/l	0.161	0.164	99.5	33-151	1.82	20	L501758-02	WG521811
a,a,a-Trifluorotoluene(PID)				100.2	55-122				WG521811

Batch number /Run number / Sample number cross reference

WG521811: R1578029: L501726-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

ESC
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Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L501726

February 17, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

* ONLY 1 COC PER SITE *

D061

Chain of Custody Page 1 of 1

Company Name/Address **XTO Energy, Inc.** **382 County Road 3100** **Aztec, NM 87410**	Alternate Billing ~~XTORNM031810S~~ XTORNM081910S Report to: James McDaniel E-mail to: James_McDaniel@xtoenergy.com	Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859

Analysis/Container/Preservative: BTEX (8021) NON-Preserved

Project Description (Project Name): OH RANDEL #7	City/State Collected: Bloomfield, NM		
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #	
Collected by: ~~James McDaniel~~ Sam LaRue	Site/Facility ID# (Project Name): OH RANDEL #7	P.O.#	
Collected by(signature): Packed on Ice N___ Y X	Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?___No_X__Yes FAX?___No___Yes	No of Cntrs

CoCode: (lab use only)
XTORNM
Template/Prelogin
Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	BTEX (8021) NON-Preserved	Remarks/contaminant	Sample # (lab only)
RANDEL MW-7	GRAB	GW	N/A	2/14/11	15:42	3	X	L501726-01	

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp_____

Remarks: Flow_____ Other_____

Relinquisher by:(Signature)	Date: 2/14/11	Time: 15:42	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__ 873600527162	Condition (lab use only): OK
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1	Bottles Received: 3
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2/15/11	Time: 0830
				pH Checked:	NCF:

* ONLY 1 COC PER SITE *

D061

Chain of Custody
Page___of___

Company Name/Address	Alternate Billing	Prepared by:
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	~~XTORNM031810S~~ XTORNM081910S Report to: James McDaniel E-mail to: James_McDaniel@xtoenergy.com	ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859

Project Description: (well name) OH RANDEL #7	City/State Collected: Bloomfield, NM	CoCode (lab use only)
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #	XTORNM
Collected by: ~~James McDaniel~~	Site/Facility ID# (well name) OH RANDEL #7	P.O.#	Template/Prelogin
Collected by(signature): Packed on Ice N___ Y X	Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?___No_X__Yes FAX?___No___Yes	No of Cntrs	Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Cntrs	BTEX (8021) NON-Preserved	Remarks/contaminant	Sample # (lab only)
RANDEL MW-7	GRAB	GW	N/A			3	X		L50172601

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks:

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
	2/11/11	15:42		873600527162	OK
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1	Bottles Received: 3V
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2/15/11	Time: 0830
				pH Checked:	NCF:

Susan Peach

From: Daphne Richards
Sent: Tuesday, February 15, 2011 1:26 PM
To: Reporting
Subject: FW: Water samples from 2/14/11
Attachments: Randel and McCoy COCs.pdf

Please scan these CoC's for L501725 for McCoy and L501726-Randel. The original CoC's were not signed and did not have sample date/time

thanks

From: Julie Linn [mailto:jlinn@ltenv.com]
Sent: Tuesday, February 15, 2011 12:00 PM
To: Daphne Richards
Cc: 'Ashley Ager'
Subject: RE: Water samples from 2/14/11

Daphne
These are the corrected COCS – that have the sample date and time and samplers name and signature. Please use these in the final report to be given to James and please disregard the erroneous COCs.
thanks

Julie Linn, P.G.
Senior Geologist
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
(970) 385-1096
(970) 903-9197 cell
jlinn@ltenv.com

Compliance ● Engineering ● Remediation

From: Daphne Richards [mailto:DRichards@esclabsciences.com]
Sent: Tuesday, February 15, 2011 10:16 AM
To: Julie Linn
Subject: RE: Water samples from 2/14/11

Hi Julie

Here you go.

Thanks!
Daphne

From: Julie Linn [mailto:jlinn@ltenv.com]
Sent: Tuesday, February 15, 2011 10:31 AM
To: Daphne Richards
Subject: Water samples from 2/14/11

Hi Daphne
We sent you two sets of water samples yesterday for BTEX. They should be on two separate COCs; one for McCoy and one for OH Randel. Our sampler accidentally sent you both copies of the COC. Could you scan and email me a copy of both COCs?
Thanks
julie

Julie Linn, P.G.
Senior Geologist
LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
(970) 385-1096
(970) 903-9197 cell
jlinn@ltenv.com

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Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Friday May 20, 2011

Report Number: L516629
Samples Received: 05/18/11
Client Project:

Description: OH Randel 007

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

May 20, 2011

ESC Sample # : L516629-01

Date Received : May 18, 2011
Description : OH Randel 007

Site ID : OH RANDEL 007

Sample ID : MW-7

Project # :

Collected By : Brooke Herb
Collection Date : 05/17/11 14:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.50	0.0050	mg/l	8021B	05/20/11	10
Toluene	0.19	0.050	mg/l	8021B	05/20/11	10
Ethylbenzene	0.016	0.00050	mg/l	8021B	05/19/11	1
Total Xylene	0.18	0.015	mg/l	8021B	05/20/11	10
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	97.2		% Rec.	8021B	05/19/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 05/20/11 14:39 Printed: 05/20/11 14:40

Summary of Remarks For Samples Printed
05/20/11 at 14:40:15

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L516629-01 Account: XTORNM Received: 05/18/11 09:00 Due Date: 05/25/11 00:00 RPT Date: 05/20/11 14:39

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L516629

May 20, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Ethylbenzene	< .0005	mg/l			WG536391	05/19/11 07:51
a,a,a-Trifluorotoluene(PID)		% Rec.	102.7	55-122	WG536391	05/19/11 07:51
Benzene	< .0005	mg/l			WG536606	05/20/11 01:19
Toluene	< .005	mg/l			WG536606	05/20/11 01:19
Total Xylene	< .0015	mg/l			WG536606	05/20/11 01:19
a,a,a-Trifluorotoluene(PID)		% Rec.	102.2	55-122	WG536606	05/20/11 01:19

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Ethylbenzene	mg/l	.05	0.0497	99.3	80-116	WG536391
a,a,a-Trifluorotoluene(PID)				101.8	55-122	WG536391
Benzene	mg/l	.05	0.0527	105.	79-114	WG536606
Toluene	mg/l	.05	0.0555	111.	79-112	WG536606
Total Xylene	mg/l	.15	0.163	109.	84-118	WG536606
a,a,a-Trifluorotoluene(PID)				102.9	55-122	WG536606

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Ethylbenzene	mg/l	0.0545	0.0497	109.	80-116	9.35	20	WG536391
a,a,a-Trifluorotoluene(PID)				103.2	55-122			WG536391
Benzene	mg/l	0.0527	0.0527	105.	79-114	0.0800	20	WG536606
Toluene	mg/l	0.0551	0.0555	110.	79-112	0.620	20	WG536606
Total Xylene	mg/l	0.158	0.163	105.	84-118	3.19	20	WG536606
a,a,a-Trifluorotoluene(PID)				103.1	55-122			WG536606

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Ethylbenzene	mg/l	0.0512	0.000820	.05	101.	39-141	L516480-09	WG536391
a,a,a-Trifluorotoluene(PID)					102.8	55-122		WG536391
Benzene	mg/l	0.0511	0	.05	102.	35-147	L516357-01	WG536606
Toluene	mg/l	0.0534	0	.05	107.	35-148	L516357-01	WG536606
Total Xylene	mg/l	0.154	0	.15	102.	33-151	L516357-01	WG536606
a,a,a-Trifluorotoluene(PID)					101.9	55-122		WG536606

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Ethylbenzene	mg/l	0.0486	0.0512	95.5	39-141	5.20	20	L516480-09	WG536391
a,a,a-Trifluorotoluene(PID)				101.3	55-122				WG536391
Benzene	mg/l	0.0511	0.0511	102.	35-147	0.0100	20	L516357-01	WG536606
Toluene	mg/l	0.0534	0.0534	107.	35-148	0.0700	20	L516357-01	WG536606
Total Xylene	mg/l	0.150	0.154	100.	33-151	2.52	20	L516357-01	WG536606
a,a,a-Trifluorotoluene(PID)				102.6	55-122				WG536606

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L516629

May 20, 2011

Batch number /Run number / Sample number cross reference

WG536391: R1693849: L516629-01
WG536606: R1694649: L516629-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L516629

May 20, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address	Alternate Billing	Analysis/Container/Preservative	E250	Chain of Custody
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S	BTEX (8021)		Page 1 of 1
	Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com		Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Project Description: OH Randel #007 ~~XTO Groundwater Monitoring~~ BTX	City/State Collected: San Juan cty, NM			
PHONE: 505-333-3701 FAX:	Client Project No. —	Lab Project #		
Collected by: Brooke Herb	Site/Facility ID# OH Randel #007	P.O.#	CoCode (lab use only) **XTORNM** Template/Prelogin	
Collected by(signature): Brooke Herb Packed on Ice N___ Y X	**Rush?** (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	**Date Results Needed** Email?___No_X__Yes FAX?____No___Yes	No of Cntrs Shipped Via: Fed Ex	

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Remarks/contaminant	Sample # (lab only)
MW-7	GRAB	GW		5/17/11	1445		L516629-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!" Flow_____ Other_____

Relinquisher by:(Signature	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Brooke Herb	5/17/11	1600		413559317 3645	OK
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 3.4° Bottles Received: 3V	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 5/18/11 Time: 0900	pH Checked: NCF:

Gulf Coast ACCUTEST LABORATORIES

08/24/11

Technical Report for

LT Environmental

LT: XTO Energy

OH Randel #7, San Juan County NM

Accutest Job Number: T83906

Sampling Date: 08/09/11

Report to:

LT Environmental
2243 Main Ave S.
Durango, CO 87301
jlinn@ltenv.com

ATTN: Julie Linn

Total number of pages in report: **13**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro
Laboratory Director

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103)

Sections: 1 2 3 4

Table of Contents

Sample Summary

LT Environmental

Job No: T83906

LT: XTO Energy
Project No: OH Randel #7, San Juan County NM

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T83906-1	08/09/11	12:24		08/10/11	AQ	Ground Water	MW-7

Gulf Coast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-7		
Lab Sample ID:	T83906-1	**Date Sampled:**	08/09/11
Matrix:	AQ - Ground Water	**Date Received:**	08/10/11
Method:	SW846 8021B	**Percent Solids:**	n/a
Project:	LT: XTO Energy		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT000925.D	1	08/12/11	WV	n/a	n/a	GTT39
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	81.3	1.0	ug/l	
108-88-3	Toluene	36.9	1.0	ug/l	
100-41-4	Ethylbenzene	5.3	1.0	ug/l	
1330-20-7	Xylenes (total)	39.4	3.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	98%		58-125%
98-08-8	aaa-Trifluorotoluene	99%		73-139%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

T83906

Company Name/Address

XTO Energy, Inc.
382 County Road 3100
Aztec, NM 87410

Alternate Billing: XTORNM031810S

Report to: James McDaniel

E-mail to: james_mcdaniel@xtoenergy.com

Analysis/Container/Preservative: BTEX 8021

Chain of Custody Page 1 of 1

Prepared by:
ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: OH Randel #7
City/State Collected: San Juan County, NM
PHONE: 505-333-3701
FAX:
Client Project No.
Lab Project #
Collected by: Brooke Herb
Site/Facility ID#: OH Randel #7
P.O.#
Collected by(signature): Brooke Herb
Packed on Ice N__ Y_X

Rush? (Lab MUST be Notified)
_____Next Day.....100%
_____Two Day.....50%
_____Three Day.....25%

Date Results Needed
Email?___No_X__Yes
FAX?___No___Yes

CoCode (lab use only)
XTORNM
Template/Prelogin
Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	Remarks/contaminant	Sample # (lab only)
MW-7	Grab	GW	-	8/9/11	1227	3	X	

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp 5.1

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Brooke Herb	8/9/11	1700			
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp: / Bottles Received:	
	8/10	0915			
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: / Time:	pH Checked: / NCF:

T83906: Chain of Custody
Page 1 of 3

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: T83906 **Client:** XTO ENERGY **Project:** OH RANDEL #7

Date / Time Received: 8/10/2011 **Delivery Method:** **Airbill #'s:** 854263473292

No. Coolers: 1 **Therm ID:** IRGUN4; **Temp Adjustment Factor:** -0.1;

Cooler Temps (Initial/Adjusted): #1: (5.2/5.1);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☑	☐	☐	☐
2. Trip Blank listed on COC:	☐		☑	☐		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☑		☐	☐		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive
F: 713.271.4770

Houston, TX 77036
www.accutest.com

T83906: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Sample Receipt Log

Job #: T83906 **Date / Time Received:** 8/10/2011 9:15:00 AM **Initials:** VG

Client: XTO ENERGY

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	T83906-1	40 ml	1	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1
1	T83906-1	40 ml	2	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1
1	T83906-1	40 ml	3	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.2	-0.1	5.1

T83906: Chain of Custody
Page 3 of 3

Gulf Coast ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T83906
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTT39-MB	TT000905.D	1	08/12/11	WV	n/a	n/a	GTT39

The QC reported here applies to the following samples: **Method:** SW846 8021B

T83906-1

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	90%	58-125%
98-08-8	aaa-Trifluorotoluene	93%	73-139%

Blank Spike Summary

Job Number: T83906
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTT39-BS	TT000904.D	1	08/12/11	WV	n/a	n/a	GTT39

The QC reported here applies to the following samples: **Method:** SW846 8021B

T83906-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	18.0	90	86-121
100-41-4	Ethylbenzene	20	18.2	91	81-116
108-88-3	Toluene	20	18.2	91	87-117
1330-20-7	Xylenes (total)	60	55.0	92	85-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	91%	58-125%
98-08-8	aaa-Trifluorotoluene	93%	73-139%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T83906
Account: LTENCOD LT Environmental
Project: LT: XTO Energy

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T83996-4MS	TT000910.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4MSD	TT000911.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4	TT000912.D	1	08/12/11	WV	n/a	n/a	GTT39
T83996-4	TT000931.D	20	08/12/11	WV	n/a	n/a	GTT39

The QC reported here applies to the following samples: **Method:** SW846 8021B

T83906-1

CAS No.	Compound	T83996-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	40.2		20	58.3	91	58.3	91	0	86-121/19
100-41-4	Ethylbenzene	1150 [b]		20	1170	100	1180	150* [a]	1	81-116/14
108-88-3	Toluene	29.7		20	49.0	97	49.3	98	1	87-117/16
1330-20-7	Xylenes (total)	556 [b]		60	637	135* [a]	643	145* [a]	1	85-115/12

CAS No.	Surrogate Recoveries	MS	MSD	T83996-4	T83996-4	Limits
460-00-4	4-Bromofluorobenzene	499%*	503%*	515%* [c]	111%	58-125%
98-08-8	aaa-Trifluorotoluene	283%*	279%*	274%* [c]	103%	73-139%

(a) Outside control limits due to high level in sample relative to spike amount.
(b) Result is from Run #2.
(c) Outside control limits due to matrix interference. Confirmed by reanalysis.

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Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Tuesday November 15, 2011

Report Number: L546128
Samples Received: 11/10/11
Client Project:

Description: OH RANDEL 007

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002,NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ESC
L·A·B S·C·I·E·N·C·E·S
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REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

November 15, 2011

ESC Sample # : L546128-01

Date Received : November 10, 2011
Description : OH RANDEL 007

Site ID : OH RANDEL 007

Sample ID : MW-7

Project # :

Collected By : Brooke Herb
Collection Date : 11/09/11 11:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.026	0.00050	mg/l	8021B	11/11/11	1
Toluene	0.016	0.0050	mg/l	8021B	11/11/11	1
Ethylbenzene	0.0023	0.00050	mg/l	8021B	11/11/11	1
Total Xylene	0.020	0.0015	mg/l	8021B	11/11/11	1
Surrogate Recovery(%)						
a,a,a-Trifluorotoluene(PID)	94.3		% Rec.	8021B	11/11/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 11/15/11 12:41 Printed: 11/15/11 12:42

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L546128-01	WG565205	SAMP	Benzene	R1931252	J6

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/15/11 at 12:42:08

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L546128-01 Account: XTORNM Received: 11/10/11 09:00 Due Date: 11/17/11 00:00 RPT Date: 11/15/11 12:41
Non-Preserved

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XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L546128

November 15, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/l			WG565205	11/11/11 22:37
Ethylbenzene	< .0005	mg/l			WG565205	11/11/11 22:37
Toluene	< .005	mg/l			WG565205	11/11/11 22:37
Total Xylene	< .0015	mg/l			WG565205	11/11/11 22:37
a,a,a-Trifluorotoluene(PID)		% Rec.	94.33	55-122	WG565205	11/11/11 22:37

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.05	0.0428	85.5	79-114	WG565205
Ethylbenzene	mg/l	.05	0.0468	93.6	80-116	WG565205
Toluene	mg/l	.05	0.0460	91.9	79-112	WG565205
Total Xylene	mg/l	.15	0.139	92.7	84-118	WG565205
a,a,a-Trifluorotoluene(PID)				91.58	55-122	WG565205

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0436	0.0428	87.0	79-114	2.03	20	WG565205
Ethylbenzene	mg/l	0.0485	0.0468	97.0	80-116	3.61	20	WG565205
Toluene	mg/l	0.0465	0.0460	93.0	79-112	1.15	20	WG565205
Total Xylene	mg/l	0.143	0.139	95.0	84-118	2.70	20	WG565205
a,a,a-Trifluorotoluene(PID)				91.83	55-122			WG565205

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0443	0.0260	.05	36.6	35-147	L546128-01	WG565205
Ethylbenzene	mg/l	0.0492	0.00230	.05	93.8	39-141	L546128-01	WG565205
Toluene	mg/l	0.0474	0.0160	.05	62.9	35-148	L546128-01	WG565205
Total Xylene	mg/l	0.148	0.0200	.15	85.1	33-151	L546128-01	WG565205
a,a,a-Trifluorotoluene(PID)					94.16	55-122		WG565205

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0420	0.0443	32.0*	35-147	5.34	20	L546128-01	WG565205
Ethylbenzene	mg/l	0.0465	0.0492	88.5	39-141	5.57	20	L546128-01	WG565205
Toluene	mg/l	0.0444	0.0474	56.8	35-148	6.60	20	L546128-01	WG565205
Total Xylene	mg/l	0.139	0.148	79.1	33-151	6.21	20	L546128-01	WG565205
a,a,a-Trifluorotoluene(PID)				92.47	55-122				WG565205

Batch number /Run number / Sample number cross reference

WG565205: R1931252: L546128-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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James McDaniel
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Aztec, NM 87410

Quality Assurance Report
Level II

L546128

November 15, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

F225

Chain of Custody
Page 1 of 1

Company Name/Address	Alternate Billing	Analysis/Container/Preservative
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S	BTEX 8021
	Report to: James McDaniel	
	E-mail to: james_mcdaniel@xtoenergy.com	

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: OH Randel #007	City/State Collected: San Juan County, NM		
PHONE: 505-333-3701 FAX:	Client Project No.	Lab Project #	
Collected by: Brooke Herb	Site/Facility ID# OH Randel #007	P.O.#	
Collected by(signature): Brooke Herb Packed on Ice N__ Y X	Rush? (Lab MUST be Notified) _____Next Day.....100% _____Two Day.....50% _____Three Day.....25%	Date Results Needed Email?__No_X__Yes FAX?___No___Yes	No of Cntrs

CoCode (lab use only)
XTORNM
Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
MW-7	G	GW		11/9/11	11:30	3 ✓	non-preserved	L546128-01
								L546128

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature) Brooke Herb	Date: 11/9/11	Time: 1600	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__ 5134178319 3163	Condition (lab use only) OK
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 2.1°C / Bottles Received: 3V	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature) Tina Wolen	Date: 11/10/11 / Time: 0900	pH Checked: NCF:

Attachment 5

Field Notes

SAMPLING PURGE LOG

Project Name: XTO Groundwater | Location: OH Randel #7 | Well No: MW-7
Client: XTO Energy, Inc. | Date: 2/14/2011 | Time: 13:35
Project Manager: Julie Linn | Sampler's Name: Sam LaRue

Measuring Point: TOC | Depth to Water: 17.74 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 32.06 ft | Product Thickness: NA ft
Water Column Height: 14.32 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	14.32	2.335592	7.01

Time (military)	pH (su)	EC (us)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
13:40	8.39	1265	15.3				0.25	clear, no odor
13:42	8.43	1295	14.9				0.5	no change
13:44	8.51	1292	14.8				0.75	no change
13:46	8.35	1280	14.4				1	slightly cloudy, clear, no odor
13:49	8.17	1267	14.6				2	no change
13:52	8.40	1281	14.8				3	no change
13:56	8.43	1270	14.8				4	no change
14:00	8.84	1281	14.7				5	slighly cloudy, clear, slight HC odor
14:03	8.98	1314	15.3				6	no change
14:05	9.00	1280	15.1				6.25	no change
14:06	9.00	1298	15.1				6.5	no change
14:07	9.04	1295	15.1				6.75	no change
14:08	9.10	1305	15.1				7	slightly silty, slight yellow/clear
14:10	9.11	1301	14.8				7.25	slight odor
Final:	9.11	1301	14.8				7.25	

COMMENTS: ORC Socks removed on 2/7/11; Dissolved Oxygen 0.56 mg/l on 2/7/11; ORC Socks replaced on 2/14/11

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: Randel MW-7 | Sample Time: 14:16

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No | Duplicate Sample: No

SAMPLING PURGE LOG

Project Name: XTO Groundwater | Location: O H Randel #007 | Well No: MW-7
Client: XTO Energy, Inc. | Date: 5/17/2011 | Time: 14:07
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 17.92 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 32.07 ft | Product Thickness: NA ft
Water Column Height: 14.15 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	14.15	2.307865	6.92

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
14:12	8.56	725	14.6				0.25	clearish yellow, slight HC odor
	8.43	912	14.1				0.5	no change
	8.64	1033	13.6				0.75	no change
	8.49	1058	14.2				1	no change
	7.9	1126	13.7				2	no change
	7.84	1134	13.9				3	Cloudy, slightly turbid
	8.95	1097	14				4	more silt, minor odor, light brown
	9.45	1145	14.5				5	no change
	9.66	1195	14.7				6	no change
	9.84	1203	14.5				6.25	light brown, silty, no odor
	9.83	1208	14.5				6.5	no change
	9.85	1187	14.6				6.75	no change
Final: 14:40	9.83	1197	14.5				7	no change

COMMENTS: ORC Socks removed on 5/11/11; Dissolved Oxygen 8.74 mg/l on 5/11/11; 9 ORC socks replaced on 5/17/11.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: MW-7 | Sample Time: 14:45

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No | Duplicate Sample: No

SAMPLING PURGE LOG

Project Name: XTO Groundwater | Location: OH Randel | Well No: MW-7
Client: XTO Energy, Inc. | Date: 8/9/2011 | Time: 11:30
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 18.11 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 32.07 ft | Product Thickness: NA ft
Water Column Height: 13.96 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	13.96	2.276876	6.83

Time (military)	pH (su)	EC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
11:40	9.57	1047	16.7				0.25	clear with a yellowish tint, no odor, no sheen
11:42	9.60	1049	16.8				0.50	no change
11:45	9.66	1047	16.3				0.75	no change
11:47	9.72	1067	15.5				1.00	no change
11:50	9.38	1061	16.5				2.00	slightly cloudier
11:53	9.46	1104	16.2				3.00	no change
11:57	9.51	1151	16.1				4.00	no change
12:00	9.47	1164	16.5				5.00	no change
12:04	9.90	1198	16.4				6.00	no change
12:07	9.91	1209	16.4				6.25	more silt, light brown
12:12	9.92	1215	15.9				6.50	no change
12:17	9.90	1212	16.3				6.75	no change
12:20	9.91	1220	16.4				7.00	no change
12:25	9.92	1221	16.4				7.25	no change
Final:	9.92	1221	16.4				7.25	

COMMENTS: Calibrate water quality meter at 11:30.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: MW-7 | Sample Time: 12:27

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No | Duplicate Sample: No

SAMPLING PURGE LOG

Project Name: XTO Groundwater | Location: OH Randel | Well No: MW-7
Client: XTO Energy, Inc. | Date: 11/9/2011 | Time: 10:49
Project Manager: Julie Linn | Sampler's Name: Brooke Herb

Measuring Point: TOC | Depth to Water: 18.46 ft | Depth to Product: NA ft
Well Diameter: 2" | Total Depth: 32.14 ft | Product Thickness: NA ft
Water Column Height: 13.68 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☐ Other

Water Volume in Well			
Gallons of water per foot	Feet of water in well	Gallons of water in well	3 casing volumes to be removed
0.1631	13.68	2.231208	6.69

Time (military)	pH (su)	EC (us)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. Gallons	Comments/Flow Rate
10:51	9.36	1197	15.9				0.25	clear, no silt
10:53	9.58	1258	15.4				0.50	re-calibrate pH meter
10:55	9.76	1295	15.2				0.75	clear very minor silt
10:57	9.81	1320	15.2				1.00	no change
11:01	9.48	1309	15.0				2.00	slightly cloudier
11:07	9.37	1333	14.8				3.00	no change
11:11	10.30	1354	14.1				4.00	no change
11:15	10.55	1371	13.8				5.00	no change
11:17	10.71	1402	13.9				5.50	no change
11:20	10.71	1391	13.9				5.75	no change
11:22	10.75	1428	13.9				6.00	no change
11:24	10.89	1448	13.9				6.25	no change
11:26	10.89	1449	13.9				6.50	no change
Final: 11:29	10.9	1446	13.9				6.75	no change

COMMENTS: Calibrate water quality meter at 7:00 AM

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: on site sump

Sample ID: MW-7 | Sample Time: 11:30

Analysis Requested: ☑ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☐ Nitrate ☐ Nitrite ☐ Metals
☐ Other

Trip Blank: No | Duplicate Sample: No

Attachment 6

LT Environmental
Beneficial Use Analysis
January 2012

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1873

January 30, 2012

Mr. James McDaniel
XTO Energy, Inc.
382 CR 3100
Aztec, New Mexico 87410

RE: Request for Closure
OH Randel #007
XTO Energy, Inc.
San Juan County, New Mexico

Dear Mr. McDaniel:

LT Environmental, Inc. (LTE) presents to XTO Energy, Inc. (XTO) the following recommendation for site closure at the OH Randel #007 natural gas production well (Site). A former earthen separator pit impacted soil and shallow groundwater at the Site. XTO initially conducted product recovery and monitored groundwater quality, and eventually excavated as much of the source material as was practical. Subsequently, XTO has selected natural attenuation to remediate residual groundwater impacts by use of oxygen releasing compound (ORC) socks to enhance *in-situ* aerobic biodegradation of the petroleum hydrocarbons dissolved in groundwater. LTE has reviewed the history and assessed hydrogeologic characteristics at the Site. XTO's previous source removal efforts, ongoing natural attenuation, and the limited extent of remaining impacts make additional remediation impractical. Due to the aquifer's irrigation-induced origin and associated usage restrictions, naturally poor water quality, and overall low productivity, LTE recommends XTO request closure of the Site from the New Mexico Oil Conservation Division (NMOCD) based on the lack of any present or foreseeable beneficial use of the impacted aquifer at the Site.

SITE SETTING

The Site is located in Unit D of Section 15 of Township 26N, Range 11W, San Juan County, New Mexico, within the Bisti Region of the San Juan Basin on the Navajo Indian Reservation (Figure 1). Surrounding land use consists of cropland irrigated by the Navajo Indian Irrigation Project (NIIP) operated by the Navajo Agricultural Products Industry (NAPI).

Regional Geology and Hydrology

The predominant geologic formation is the Nacimiento Formation of Tertiary age, which underlies surface soils and is often exposed. Drainage is primarily by the San Juan River, the only permanent stream in the Navajo Section of the Colorado Plateau. The San Juan River is a tributary of the Colorado River and its flow is regulated by the Navajo Dam, located approximately 30 miles northeast of Farmington, New Mexico.

Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). In the Bisti Region, the primary useable aquifer exists within the coarser and continuous sandstone bodies of the Nacimiento Formation. Depth to groundwater within these aquifers is 200 feet below ground surface (bgs) and greater.

Navajo Indian Irrigation Project (NIIP)

The Site is part of a large area of land farmed by NAPI for growing a variety of crops, including corn, potatoes, alfalfa, and pinto beans. In 1960, the United States Congress authorized construction of the NIIP to provide a water delivery system from the Navajo Dam reservoir to 110,630 acres of irrigable land in the Bisti Region. The NAPI was created to manage and maintain the croplands and water delivery system. Irrigation water is released from the San Juan River at Navajo Dam through a diversion headworks and travels through a series of concrete- and membrane-lined open canals. Irrigation in the Bisti Region produces shallow discontinuous perched aquifers, such as the one present at the Site, that are not defined in published literature.

Land and Water Use

Land use surrounding the Site consists of cropland, natural gas development, unused land, and occasional residences. The Site is located 580 feet southeast of a center-pivot irrigated agricultural field operated by NAPI. A second field is located 2,100 feet north of the Site. Three natural gas production wells exist within a half-mile radius of the Site. The San Juan River is the closest continuously flowing surface water and is 14.3 miles north of the Site. Gallegos Canyon, considered the closest significant watercourse, is 3.5 miles to the west.

The irrigation-induced aquifer at the Site is not currently used for any beneficial purposes. The nearest permitted water supply well is a single-use domestic water well located 0.9 miles southwest of the Site. The well is completed in a bedrock aquifer to a total depth of 255 bgs. Depth to groundwater in the well is 200 feet bgs. The nearest residences are 0.6 miles southeast of the Site and 0.9 miles southwest of the Site. A small cluster of homes exists 1 mile south of the Site as part of a tribal chapter community. While the source of domestic water for these residences is unknown, the distance between the residences and the Site is sufficient that it is highly unlikely the residents would be affected by any groundwater at the Site. Irrigation water is supplied from the San Juan River by the NIIP. No stock ponds are evident within one mile of the Site.

SITE HISTORY

The OH Randel #007 natural gas production well was spudded on February 2, 1981, by Energy Reserves Group, Inc. It was sold to Amoco Production Corporation in 1985 and then to Cross Timbers Oil (currently XTO) in 1998.

The former earthen separator pit was identified during site upgrades in March of 2002. As a result, XTO installed 6 monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) to

investigate groundwater impact (Figure 2). Phase separated hydrocarbons (PSH) were detected in MW-1, MW-2, and MW-6. Between 2002 and 2006, XTO monitored groundwater quality by sampling the groundwater in monitoring wells quarterly and recovering an estimated 22 gallons of product.

From November 13 through 27, 2006, XTO excavated approximately 6,882 cubic yards of impacted soil. The extent of the excavation is depicted on Figure 3. Most of the impacted soil was removed and the excavation was dewatered using vacuum trucks. Laboratory analytical results from all but one confirmation soil sample were in compliance with NMOCD standards for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations. A composite soil sample of the northeast wall of the excavation contained 1,350 milligrams per kilogram (mg/kg) of TPH and 20.24 mg/kg of BTEX indicating some impacted soil remained. The Navajo Nation Environmental Protection Agency (NNEPA) approved closure of the excavation pending installation of additional monitoring wells after backfilling.

Monitoring wells MW-1, MW-2, and MW-6 were removed during the excavation. In May 2007, XTO installed MW-7 and MW-8 to evaluate any remaining groundwater impact. BTEX concentrations were elevated in MW-7, and XTO installed MW-9 and MW-10 in July 2009 to further delineate groundwater impact. MW-10 never generated groundwater and was plugged. Subsequent groundwater sampling results indicated the elevated BTEX concentrations were limited to MW-7. In July 2010, XTO added ORC socks to the groundwater in MW-7 to enhance natural biodegradation.

CURRENT CONDITIONS

Water Quality

Laboratory analytical results from groundwater samples collected at the Site are presented in Tables 1 and 2. Currently, groundwater at the Site does not contain BTEX concentrations exceeding the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards, except for groundwater sampled from MW-7. BTEX concentrations in MW-7 have been declining steadily since November 2010, when benzene was present at a concentration of 5,200 micrograms per liter (µg/L), toluene was present at a concentration of 5,500 µg/L, ethylbenzene was present at a concentration of 76 µg/L, and total xylenes were present at a concentration of 3,400 µg/L. During the most recent sampling event for MW-7 in November 2011, benzene was the only constituent exceeding NMWQCC standards with a concentration of 26 µg/L. The decreasing BTEX concentrations in MW-7 are most likely the result of installation of ORC socks emplaced and maintained in the saturated interval of MW-7.

On January 4, 2012, LTE collected a groundwater sample from background monitoring well MW-3, which was analyzed for general chemistry parameters. Laboratory analytical results (Appendix A) indicate the background water at the Site contains 21 milligrams per liter (mg/l) of nitrate, which exceeds the NMWQCC human health standard for groundwater of 10 mg/l. Additionally, the laboratory analytical results indicate background groundwater at the Site

contains 320 mg/l of iron and 1,100 mg/l of total dissolved solids (TDS), which exceed the NMWQCC groundwater standards for domestic water supply of 1.0 mg/l and 1,000 mg/l, respectively (Table 2).

Hydrology and Remaining Groundwater Impact

Lithology at the Site, as determined from borehole lithologic logs, consists of poorly sorted sand with minor to no fines from the ground surface to approximately 12 feet to 15 feet bgs where the silt content increases to a depth of 20 feet bgs. A tight clay layer is present at a depth of approximately 20 feet or 21 feet bgs and extends to at least to 37 feet bgs. The primary water bearing unit is a perched aquifer encountered at a depth of approximately 15 feet bgs and extending approximately one foot into the top of the clay layer (approximately 21 feet or 22 feet bgs). Based on Fetter (1988), a default value for hydraulic conductivity of the sandy silt or silty sand is assigned to be 10^{-6} to 10^{-4} centimeters per second (cm/s), which is equivalent to 2.84 feet per day.

Historical groundwater elevations measured at the Site are presented in Table 3. Quarterly potentiometric surface diagrams for 2011 are depicted in Figures 3-6. Groundwater flow direction varies from north to northeast with a gradient ranging from 0.12 feet per foot to 0.2 feet per foot.

Lateral and vertical migration of BTEX impacted groundwater is limited by properties of the aquifer and fluctuations in depth to groundwater. Lateral migration of BTEX impacted groundwater is also limited by the hydraulic conductivity of the aquifer bearing unit. Assuming a hydraulic conductivity of 10^{-4} cm/s and a saturated thickness of 7 feet for the aquifer, a transmissivity of 14.84 gallons per day per foot is assumed. The hydraulic conductivity of the underlying clay ranges from 10^{-9} to 10^{-6} cm/s assuming default values (Fetter, 1988). The low conductivity clay layer acts as a barrier to the downward vertical migration of BTEX impacted groundwater. Additionally, the specific gravity of BTEX is less dense than water and dissolved BTEX in groundwater is not likely to migrate vertically downward. Upward vertical migration of BTEX impacted groundwater is limited by depth to groundwater fluctuations in MW-7, which did not exceed 3.74 feet between May 2007 and November 2011. This value is for advection of uncontaminated groundwater and does not consider dispersion or diffusion of the dissolved BTEX in groundwater; which is discussed below.

Natural Attenuation

Natural attenuation is an ongoing process that will continue at the Site. Aerobic biodegradation is currently being enhanced by the use of ORC socks in MW-7. Benzene concentrations in groundwater in MW-7 have decreased approximately 200 percent (%) from a maximum of 12,000 µg/L to a minimum of 26 µg/L since installation of ORC socks in the monitoring well. Given the low concentrations of BTEX remaining in the groundwater at the Site, enhanced aerobic biodegradation and other forms of natural attenuation will likely continue.

Additional natural attenuation processes acting on the dissolved phase BTEX in groundwater include sorption, dispersion, dilution, and volatilization. Each of these processes has a different rate of effectiveness for attenuating the dissolved phase BTEX at the Site. The rate of sorption of BTEX to the soil particles depends both on the physical and chemical characteristics of the soil particles and BTEX. The organic carbon content of the silty sand and sandy silt water bearing unit is likely to be moderate to moderately high, which will enhance the sorption of benzene molecules to the soil particles via adsorption. Sorption of toluene and o-xylene is likely more effective than benzene, and sorption of m-xylene, p-xylene, and ethylbenzene is likely a very effective natural attenuation process at the Site. While dispersion, dilution, and volatilization do act on the dissolved phase BTEX in the groundwater at the Site, the relatively low conductivity of the aquifer and underlying clay barrier indicates these natural attenuation processes have a minimal effect on the degradation of the dissolved phase BTEX in groundwater at the Site.

BENEFICIAL USE ANALYSIS

According to the New Mexico Office of the State Engineer (NMOSE), all underground water with less than 10,000 mg/L of TDS must be protected, except any water with no present or reasonably foreseeable future beneficial use. The reasonably foreseeable future is generally assumed to be between 200 and 1,000 years. Beneficial uses are defined as domestic, municipal, irrigation, livestock, industrial, power development, and recreational purposes.

Laboratory analysis of a background groundwater sample indicates the aquifer is not fit for human consumption or domestic water supply use based on elevated concentrations of nitrate, iron, and TDS. The aquifer cannot be used in the future for domestic use.

Impacted groundwater at the Site is part of a thin perched aquifer sourced primarily by infiltration of irrigation water applied to the adjacent NAPI field. The application of water to this field is directly connected to implementation of the NIIP, which is in turn dependent on the management of water resources for the Colorado River Basin. The development of NIIP created a large municipal and industrial water use in the San Juan Basin and can supply water for beneficial uses in addition to irrigation; however, separate contracts for such uses must first be executed and approved by the United States Congress. This stipulation alone restricts future beneficial use of NIIP-sourced water for uses other than irrigation.

The aquifer at the Site is not likely capable of producing sufficient quantities of groundwater to supply any of the beneficial uses described by the NMOSE. The hydraulic conductivity of the aquifer is approximately 10^{-4} cm/s, which is equivalent to 2.12 gallons per day per square foot. The aquifer has an estimated transmissivity of only 14.84 gallons per foot. The primary source of recharge for the aquifer is infiltration of irrigation water from the adjacent agricultural field. Without this source of recharge, the aquifer at the Site is likely to be smaller in volume and possibly non-existent.

CONCLUSIONS

Most of the soil and groundwater impacted by a former earthen separator pit was removed by XTO during excavation activities in 2006. The remaining BTEX impact to groundwater at the Site is limited in concentration and extent due to source removal and enhanced biodegradation. Attenuation is an ongoing process that will continue through natural processes and migration of any residual BTEX will be restricted by the subsurface lithology and hydrologic properties of the aquifer.

Groundwater at the Site is not a current source of beneficial use. Based on the poor water quality of the aquifer, legal restrictions on its source for uses other than irrigation, and low productivity, the aquifer is not a viable source for any beneficial use in the future. As such, LTE recommends XTO request site closure from the NMOCD based on the lack of present and reasonably foreseeable beneficial use of the impacted groundwater.

If you have any additional questions or comments, do not hesitate to contact me at (970)-385-1096 or via email at aager@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Ashley L. Ager, M.S.
Senior Geologist

Attachments (8)

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Potentiometric Map, February 2011
Figure 4 – Potentiometric Map, May 2011
Figure 5 – Potentiometric Map, August 2011
Figure 6 – Potentiometric Map, November 2011

Table 1 – Groundwater Analytical Results – BTEX
Table 2 – Groundwater Analytical Results – General Chemistry
Table 3 – Groundwater Elevation Summary

Appendix A – General Chemistry Analytical Laboratory Report, January 4, 2012
Appendix B – References

FIGURES

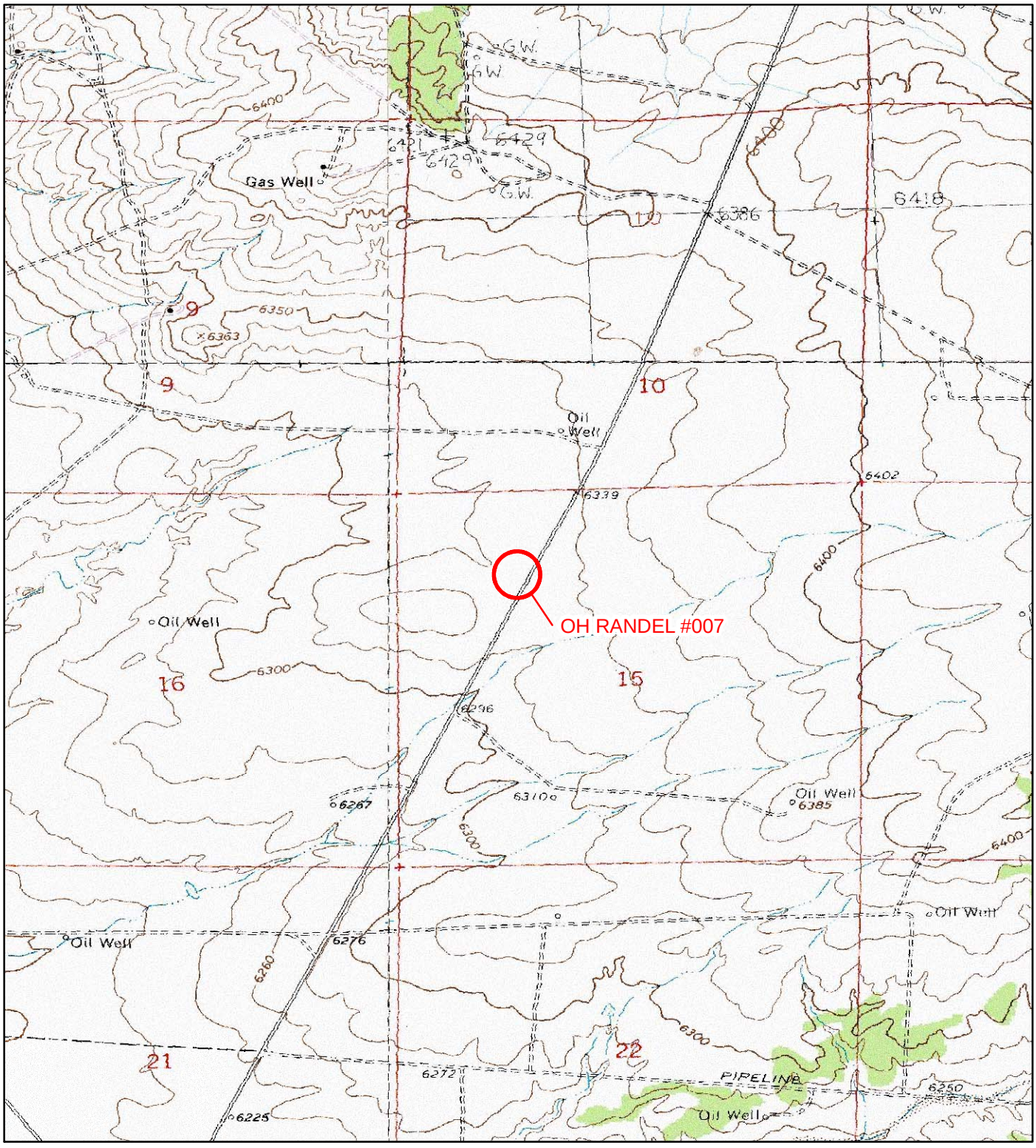


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

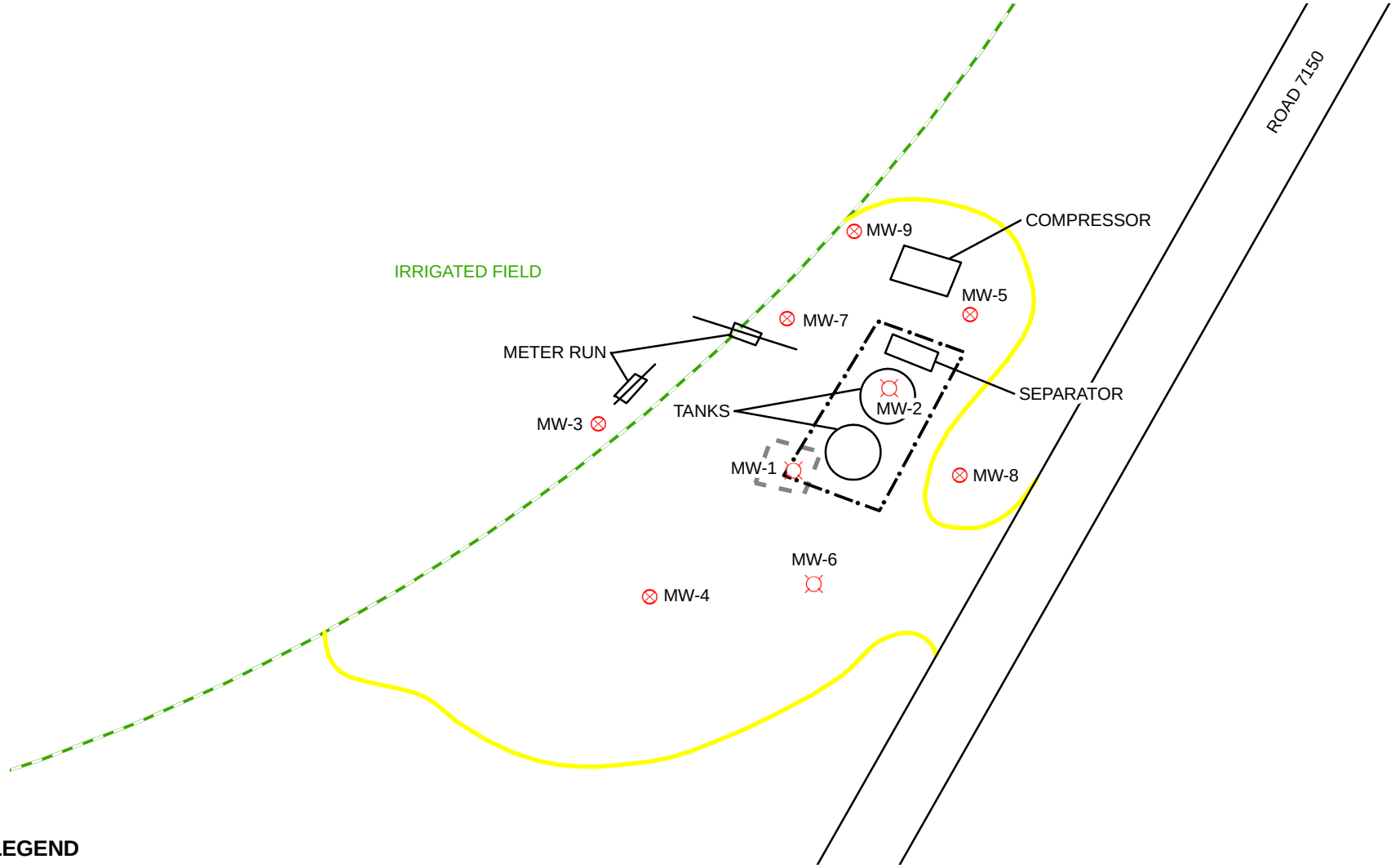
0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG01_SL.mxd



LEGEND

- MONITORING WELL
- REMOVED MONITORING WELL
- BERM
- ABANDONED SEPARATOR PIT
- IRRIGATED FIELD
- PAD PERIMETER

0 80 160
Feet

N

FIGURE 2
SITE MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG01_SITE.mxd

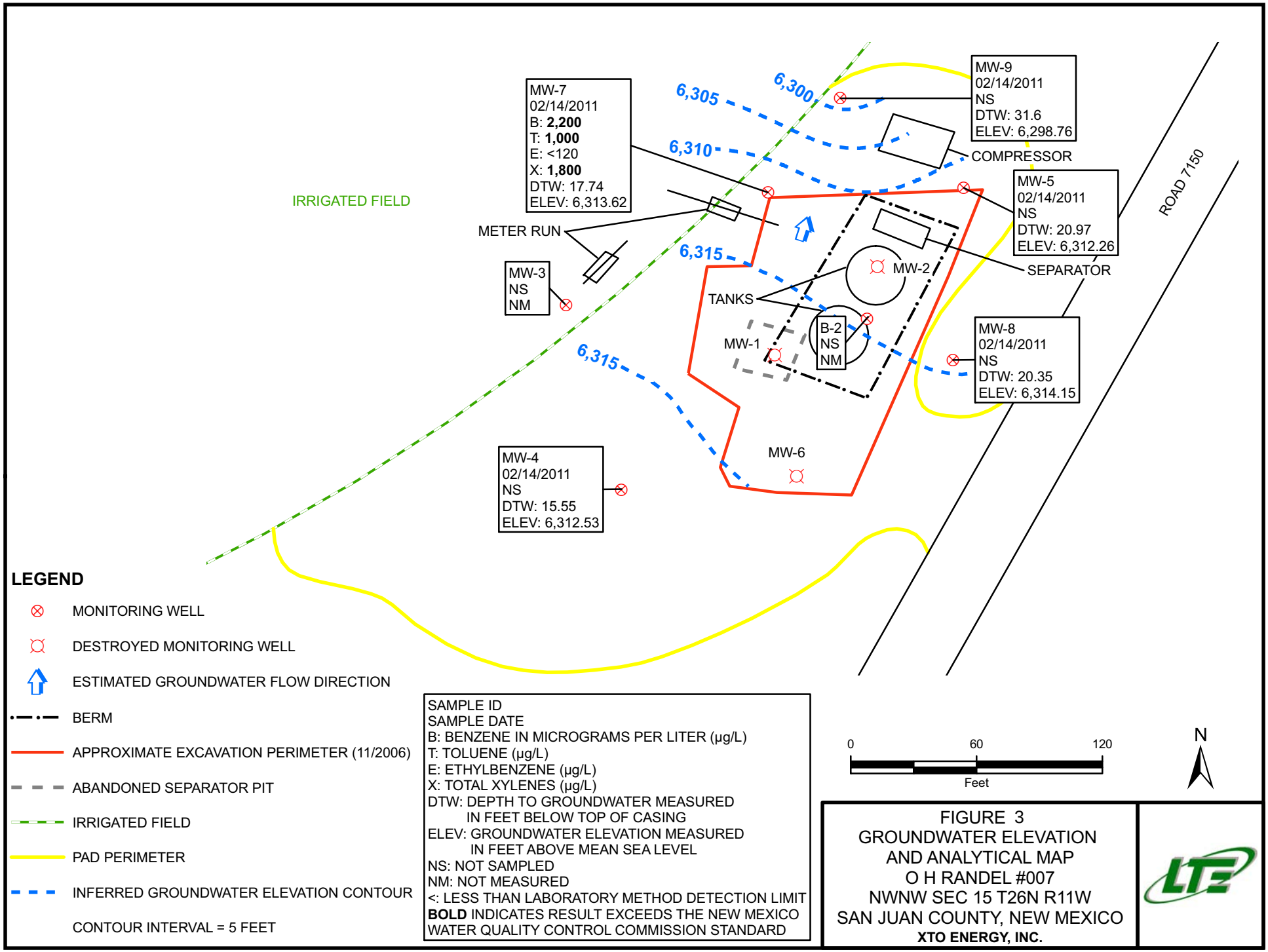


FIGURE 3
GROUNDWATER ELEVATION AND ANALYTICAL MAP
O H RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG02_GWELEV_GWANALY_2011_Q1.mxd

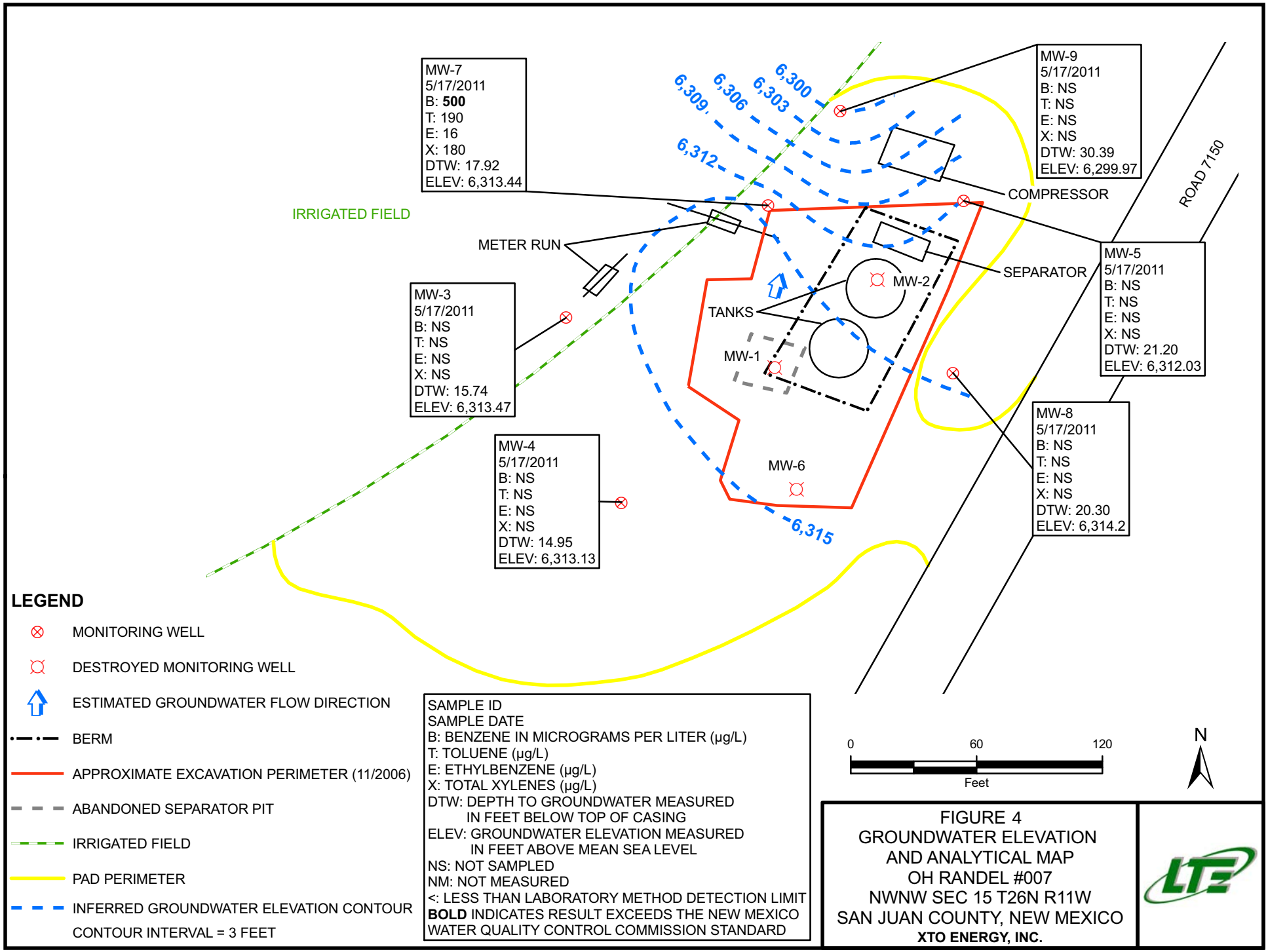


FIGURE 4
GROUNDWATER ELEVATION AND ANALYTICAL MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\XTO1002\XTO1002_OH_RANDEL_FIG02_GWELEV_GWANALY_2011_Q2.mxd

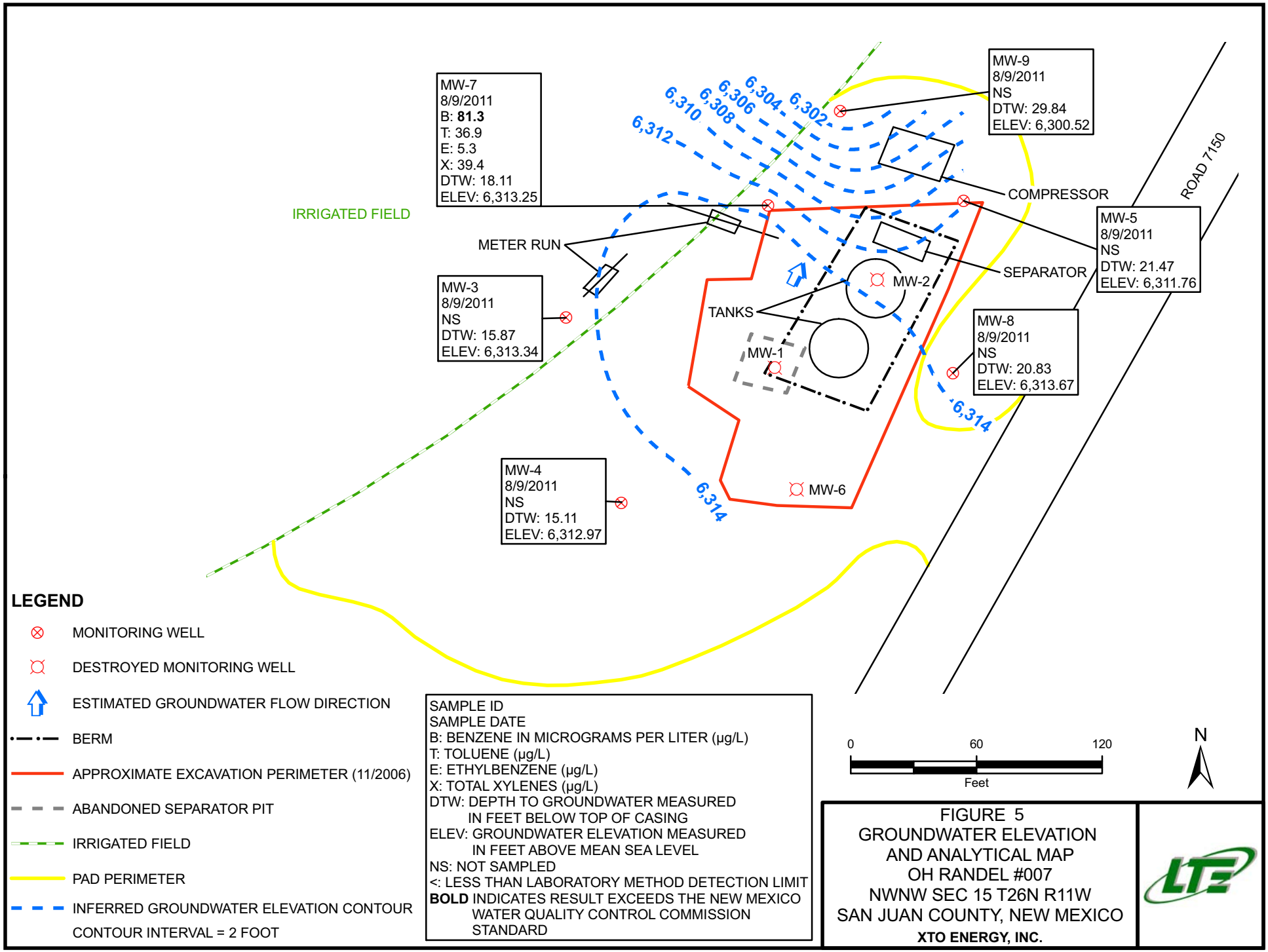
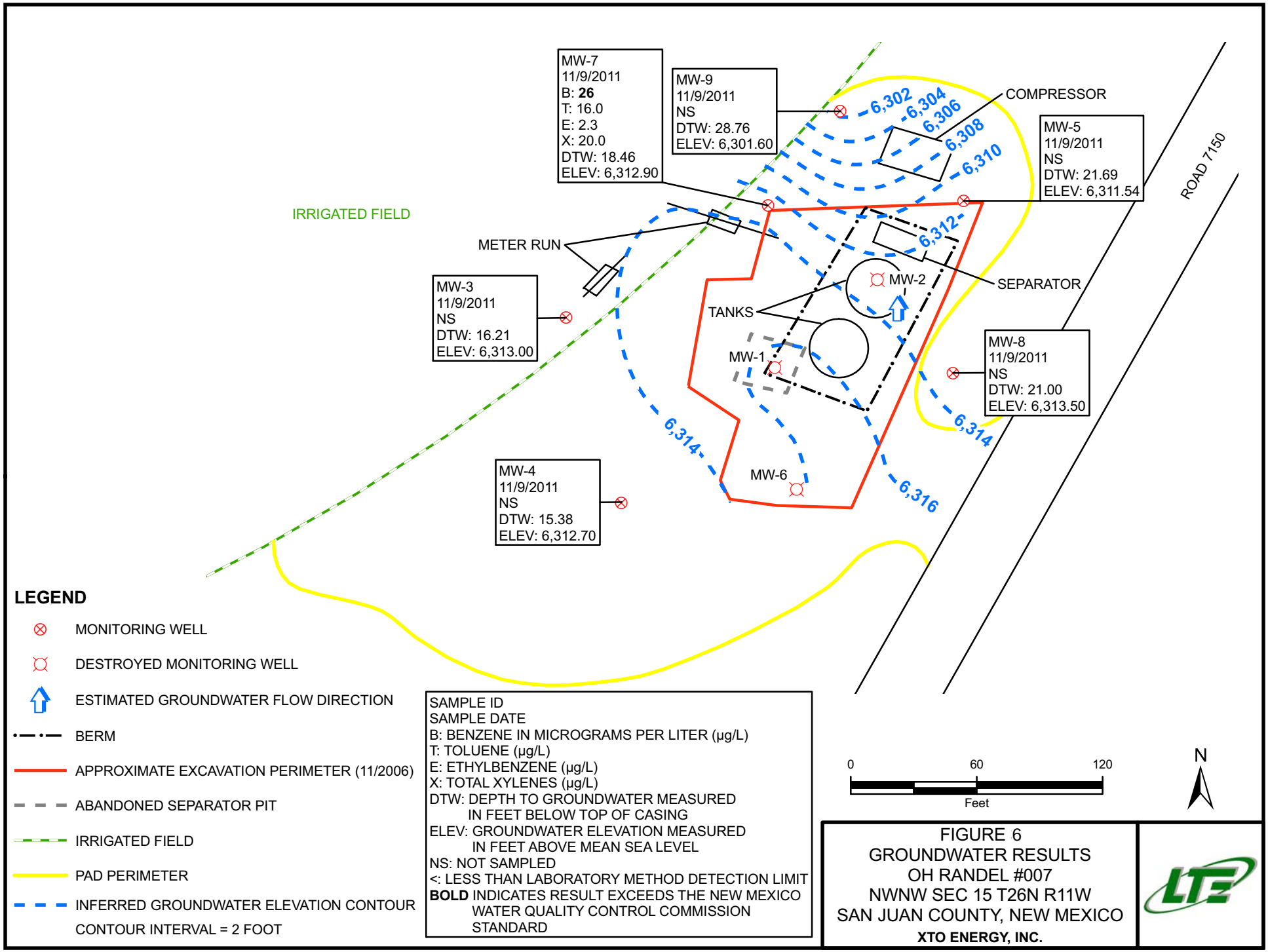


FIGURE 5
GROUNDWATER ELEVATION AND ANALYTICAL MAP
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\MXD\012911009\012911009_004_OH_RANDEL_FIG03_GWELEV_GWANALY_2011_Q3.mxd


MW-7
11/9/2011
B: 26
T: 16.0
E: 2.3
X: 20.0
DTW: 18.46
ELEV: 6,312.90
MW-9
11/9/2011
NS
DTW: 28.76
ELEV: 6,301.60
COMPRESSOR
MW-5
11/9/2011
NS
DTW: 21.69
ELEV: 6,311.54
ROAD 7150
IRRIGATED FIELD
METER RUN
SEPARATOR
MW-3
11/9/2011
NS
DTW: 16.21
ELEV: 6,313.00
MW-2
TANKS
MW-1
MW-8
11/9/2011
NS
DTW: 21.00
ELEV: 6,313.50
MW-4
11/9/2011
NS
DTW: 15.38
ELEV: 6,312.70
MW-6
6,302
6,304
6,306
6,308
6,310
6,312
6,314
6,316
LEGEND
MONITORING WELL
DESTROYED MONITORING WELL
ESTIMATED GROUNDWATER FLOW DIRECTION
BERM
APPROXIMATE EXCAVATION PERIMETER (11/2006)
ABANDONED SEPARATOR PIT
IRRIGATED FIELD
PAD PERIMETER
INFERRED GROUNDWATER ELEVATION CONTOUR
CONTOUR INTERVAL = 2 FOOT
SAMPLE ID
SAMPLE DATE
B: BENZENE IN MICROGRAMS PER LITER (µg/L)
T: TOLUENE (µg/L)
E: ETHYLBENZENE (µg/L)
X: TOTAL XYLENES (µg/L)
DTW: DEPTH TO GROUNDWATER MEASURED IN FEET BELOW TOP OF CASING
ELEV: GROUNDWATER ELEVATION MEASURED IN FEET ABOVE MEAN SEA LEVEL
NS: NOT SAMPLED
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS THE NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD
0
60
120
Feet
N
FIGURE 6
GROUNDWATER RESULTS
OH RANDEL #007
NWNW SEC 15 T26N R11W
SAN JUAN COUNTY, NEW MEXICO
XTO ENERGY, INC.
P:\XTO Energy\GIS\MXD\012911009\012911009_004_OH_RANDEL_FIG03_GWELEV_GWANALY_2011_Q4.mxd

TABLES

TABLE 1

GROUNDWATER ANALYTICAL RESULTS - BTEX
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
NMWQCC Groundwater Standard		**10 µg/L**	**750 µg/L**	**750 µg/L**	**620 µg/L**
MW-3	4/24/2002	24	2.4	0.58	200
MW-3	8/27/2002	9.4	ND	ND	150
MW-3	10/8/2002	NA	NA	NA	NA
MW-3	3/3/2003	5.5	ND	ND	43
MW-3	6/18/2003	6.1	0.97	ND	43
MW-3	8/29/2003	3.2	0.53	ND	24
MW-3	12/5/2006	<1	<1	<1	<3
MW-3	5/17/2007	<1	<1	<1	<2
MW-3	8/9/2007	<1	<1	<1	<2
MW-4	4/24/2002	ND	0.59	ND	2.1
MW-4	8/27/2002	1.3	ND	ND	3.5
MW-4	3/3/2003	4.2	ND	ND	5
MW-4	6/18/2003	6.2	ND	ND	4.5
MW-4	8/29/2003	8.3	ND	ND	4.3
MW-4	12/5/2006	<1	<1	<1	<3
MW-4	5/17/2007	<1	<1	<1	<2
MW-4	8/9/2007	<1	<1	<1	<2
MW-5	4/24/2002	**510**	0.64	8.9	240.0
MW-5	8/10/2002	NA	NA	NA	NA
MW-5	6/18/2003	**1,100**	20	ND	**660.0**
MW-5	6/21/2004	**2,000**	ND	ND	260.0
MW-5	6/28/2005	**1,100**	15	ND	160.0
MW-5	12/5/2006	**37**	<1	<1	4.1
MW-5	5/17/2007	<1	<1	<1	<2
MW-6	4/24/2002	**6,100**	**4,800**	**920**	**6,600**
MW-7	5/17/2007	**8,500**	**17,000**	**980**	**16,000**
MW-7	8/9/2007	**9,800**	**11,000**	**770**	**12,000**
MW-7	11/27/2007	**12,000**	**9,000**	**940**	**13,000**
MW-7	5/12/2008	**7,900**	**11,000**	**830**	**12,000**
MW-7	11/7/2008	**12,000**	**16,000**	**1,100**	**17,000**

TABLE 1

GROUNDWATER ANALYTICAL RESULTS - BTEX
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
NMWQCC Groundwater Standard		**10 µg/L**	**750 µg/L**	**750 µg/L**	**620 µg/L**
MW-7	7/8/2009	**9,800**	**8,200**	<100	**12,000**
MW-7	11/5/2009	**9,800**	**7,900**	570	**13,000**
MW-7	5/25/2010	**7,200**	**3,800**	440	**11,000**
MW-7	8/12/2010	**82**	58	9.2	200
MW-7	11/17/2010	**5,200**	**5,500**	76.0	**3,400**
MW-7	2/14/2011	**2,200**	**1,000**	<120	**1,800**
MW-7	5/17/2011	**500**	190	16	180
MW-7	8/9/2011	**81.3**	36.9	5.3	39.4
MW-7	11/9/2011	**26**	16	2.3	20
MW-8	5/17/2007	<1.0	1.9	<1.0	3.7
MW-8	8/9/2007	<1.0	<1.0	<1.0	<2.0
MW-8	11/27/2007	**21.0**	<1.0	<1.0	<2.0
MW-8	5/12/2008	1.4	<1.0	<1.0	<2.0
MW-8	11/7/2008	1.2	<1.0	<1.0	<2.0
MW-8	7/8/2009	<1.0	<1.0	<1.0	<2.0
MW-8	11/5/2009	1.1	<1.0	<1.0	<2.0
MW-9	7/8/2009	**91**	160	6.9	100
MW-9	11/30/2009	<1	<1	<1	<2
MW-9	5/25/2010	<1.0	<1.0	<1.0	<2.0
MW-9	8/12/2010	<0.5	<5.0	<0.5	<1.5
MW-9	11/17/2010	2.4	<5.0	<0.5	<1.5

Notes:
µg/l - micrograms per liter
< indicates result is less than the stated laboratory method detection limit
NMWQCC - New Mexico Water Quality Control Commission
NS - Not Sampled
* - Well was Destroyed
BOLD indicates the result exceeds the NMWQCC Standard
Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8021B

TABLE 2

GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY
OH RANDEL #007
XTO ENERGY, INC.

Analyte	Unit	NMWQCC Standard	MW-3 (Collected 1/4/12)
Chloride	mg/L	250	43
Fluoride	mg/L	1.6	0.84
Nitrate	mg/L	10	**21**
Nitrite	mg/L	NE	1.5
Sulfate	mg/L	600	220
Alkalinity	mg/L	NE	460
ORP	mV	NE	150
pH	su	6-9	7.9
Phosphorus, Total	mg/L	NE	0.9
Specific Conductance	umhos/cm	NE	2,100
Total Dissolved Solids	mg/L	1,000	**1,100**
Calcium	mg/L	NE	400
Iron	mg/L	1.0	**320**
Magnesium	mg/L	NE	96
Potassium	mg/L	NE	56
Sodium	mg/L	NE	320

Notes:
mg/L - milligrams per liter
mV - millivolts
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
ORP - oxygen reduction potential
su - standard unit

TABLE 3

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-1	4/22/2002	16.30	16.63	No Survey Data
MW-1	4/24/2002	NM	NM	No Survey Data
MW-1	8/27/2002	16.19	16.49	No Survey Data
MW-1	10/08/2002	15.79	16.16	No Survey Data
MW-1	5/23/2003	15.73	16.04	No Survey Data
MW-1	5/28/2003	15.81	15.99	No Survey Data
MW-1	6/6/2003	15.93	16.04	No Survey Data
MW-1	6/18/2003	15.97	16.04	No Survey Data
MW-1	6/26/2003	17.85	17.93	No Survey Data
MW-1	7/31/2003	16.18	16.19	No Survey Data
MW-1	8/29/2003	NM	16.29	No Survey Data
MW-1	6/21/2004	16.28	17.09	No Survey Data
MW-1	9/20/2006	0.00	22.28	No Survey Data
MW-1	12/5/2006 *	NM	NM	No Survey Data
MW-2	4/22/2002	NM	18.32	No Survey Data
MW-2	4/24/2002	18.35	18.38	No Survey Data
MW-2	8/27/2002	18.92	19.86	No Survey Data
MW-2	10/08/2002	17.50	18.02	No Survey Data
MW-2	5/23/2003	17.30	17.83	No Survey Data
MW-2	5/28/2003	17.62	17.78	No Survey Data
MW-2	6/6/2003	17.71	17.83	No Survey Data
MW-2	6/18/2003	17.79	17.88	No Survey Data
MW-2	6/26/2003	16.05	16.09	No Survey Data
MW-2	7/31/2003	NM	15.86	No Survey Data
MW-2	8/29/2003	NM	15.99	No Survey Data
MW-2	6/21/2004	16.10	16.83	No Survey Data
MW-2	9/20/2006	0.00	17.15	No Survey Data
MW-2	12/5/2006 *	NM	NM	No Survey Data
MW-3	4/22/2002	0.00	16.26	6312.95
MW-3	4/24/2002	0.00	16.25	6312.96
MW-3	8/27/2002	0.00	15.28	6313.93

TABLE 3

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-3	10/8/2002	0.00	14.74	6314.47
MW-3	3/3/2003	0.00	15.17	6314.04
MW-3	6/18/2003	0.00	15.16	6314.05
MW-3	8/29/2003	0.00	15.39	6313.82
MW-3	9/20/2006	NM	NM	NM
MW-3	12/5/2006	0.00	13.85	6315.36
MW-3	3/8/2007	0.00	13.40	6315.81
MW-3	5/17/2007	0.00	12.87	6316.34
MW-3	8/9/2007	0.00	12.37	6316.84
MW-3	5/12/2008	0.00	14.83	6314.38
MW-3	11/7/2008	0.00	13.92	6315.29
MW-3	7/8/2009	0.00	14.14	6315.07
MW-3	11/5/2009	0.00	14.53	6314.68
MW-3	5/25/2010	0.00	14.21	6315.00
MW-3	8/12/2010	0.00	NM	NM
MW-3	11/17/2010	0.00	15.30	6313.91
MW-3	2/14/2011	NM	NM	NM
MW-3	5/17/2011	0.00	15.74	6313.47
MW-3	8/9/2011	0.00	15.87	6313.34
MW-3	11/9/2011	0.00	16.21	6313.00
MW-4	4/22/2002	0.00	16.63	6311.45
MW-4	4/24/2002	0.00	16.66	6311.42
MW-4	8/27/2002	0.00	16.47	6311.61
MW-4	10/8/2002	0.00	16.03	6312.05
MW-4	3/3/2003	0.00	15.94	6312.14
MW-4	6/18/2003	0.00	16.03	6312.05
MW-4	8/29/2003	0.00	16.29	6311.79
MW-4	9/20/2006	NM	NM	NM
MW-4	12/5/2006	0.00	13.75	6314.33
MW-4	3/8/2007	0.00	12.55	6315.53
MW-4	5/17/2007	0.00	13.03	6315.05
MW-4	8/9/2007	0.00	12.59	6315.49

TABLE 3

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-4	5/12/2008	0.00	12.57	6315.51
MW-4	11/7/2008	0.00	13.68	6314.40
MW-4	7/8/2009	0.00	13.72	6314.36
MW-4	11/5/2009	0.00	14.12	6313.96
MW-4	5/25/2010	0.00	13.86	6314.22
MW-4	8/12/2010	0.00	14.39	6313.69
MW-4	11/17/2010	0.00	14.60	6313.48
MW-4	2/14/2011	0.00	15.55	6312.53
MW-4	5/17/2011	0.00	14.95	6313.13
MW-4	8/9/2011	0.00	15.11	6312.97
MW-4	11/9/2011	0.00	15.38	6312.70
MW-5	4/22/2002	0.00	19.11	6314.12
MW-5	4/24/2002	0.00	19.14	6314.09
MW-5	8/10/2002	0.00	19.10	6314.13
MW-5	6/18/2003	0.00	18.86	6314.37
MW-5	6/21/2004	0.00	19.64	6313.59
MW-5	6/28/2005	0.00	17.30	6315.93
MW-5	9/20/2006	NM	NM	NM
MW-5	12/5/2006	0.00	18.65	6314.58
MW-5	3/8/2007	0.00	18.15	6315.08
MW-5	5/17/2007	0.00	17.78	6315.45
MW-5	8/9/2007	0.00	NM	NM
MW-5	5/12/2008	0.00	18.82	6314.41
MW-5	11/7/2008	0.00	18.90	6314.33
MW-5	7/8/2009	0.00	20.08	6313.15
MW-5	11/5/2009	0.00	20.44	6312.79
MW-5	5/25/2010	0.00	20.33	6312.90
MW-5	8/12/2010	0.00	20.51	6312.72
MW-5	11/17/2010	0.00	20.93	6312.30
MW-5	2/14/2011	0.00	20.97	6312.26
MW-5	5/17/2011	0.00	21.20	6312.03
MW-5	8/9/2011	0.00	21.47	6311.76

TABLE 3

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-5	11/9/2011	0.00	21.69	6311.54
MW-6	4/22/2002	0.00	18.31	No Survey Data
MW-6	4/24/2002	0.00	18.32	No Survey Data
MW-6	8/27/2002	NM	NM	No Survey Data
MW-6	10/8/2002	16.84	18.13	No Survey Data
MW-6	5/23/2003	16.62	17.95	No Survey Data
MW-6	5/28/2003	16.68	17.90	No Survey Data
MW-6	6/6/2003	16.80	18.00	No Survey Data
MW-6	6/18/2003	16.78	18.02	No Survey Data
MW-6	6/26/2003	16.88	18.10	No Survey Data
MW-6	7/31/2003	17.77	19.13	No Survey Data
MW-6	8/29/2003	16.88	18.34	No Survey Data
MW-6	6/21/2004	17.78	18.95	No Survey Data
MW-6	9/20/2006	15.79	16.87	No Survey Data
MW-6	12/5/2006 *	NM	NM	No Survey Data
MW-7	5/17/2007	0.00	15.46	6315.90
MW-7	8/9/2007	0.00	14.72	6316.64
MW-7	11/27/2007	0.00	14.91	6316.45
MW-7	5/12/2008	0.00	15.12	6316.24
MW-7	11/7/2008	0.00	15.82	6315.54
MW-7	7/8/2009	0.00	16.44	6314.92
MW-7	11/5/2009	0.00	16.76	6314.60
MW-7	5/25/2010	0.00	16.63	6314.73
MW-7	8/12/2010	0.00	16.82	6314.54
MW-7	11/17/2010	0.00	17.65	6313.71
MW-7	2/14/2011	0.00	17.74	6313.62
MW-7	5/17/2011	0.00	17.92	6313.44
MW-7	8/9/2011	0.00	18.11	6313.25
MW-7	11/9/2011	0.00	18.46	6312.90
MW-8	5/17/2007	0.00	19.64	6314.86

TABLE 3

GROUNDWATER ELEVATION SUMMARY
O H RANDEL #007
XTO ENERGY, INC.

Well ID	Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Groundwater Elevation (feet AMSL)
MW-8	8/9/2007	0.00	18.94	6315.56
MW-8	11/27/2007	0.00	19.20	6315.30
MW-8	5/12/2008	0.00	19.97	6314.53
MW-8	11/7/2008	0.00	19.55	6314.95
MW-8	7/8/2009	0.00	20.01	6314.49
MW-8	11/5/2009	0.00	20.41	6314.09
MW-8	5/25/2010	0.00	20.31	6314.19
MW-8	8/12/2010	0.00	20.41	6314.09
MW-8	11/17/2010	0.00	20.63	6313.87
MW-8	2/14/2011	0.00	20.35	6314.15
MW-8	5/17/2011	0.00	20.30	6314.20
MW-8	8/9/2011	0.00	20.83	6313.67
MW-8	11/9/2011	0.00	21.00	6313.50
MW-9	7/8/2009	0.00	35.26	6295.10
MW-9	11/5/2009	0.00	33.08	6297.28
MW-9	5/25/2010	0.00	29.28	6301.08
MW-9	8/12/2010	0.00	31.12	6299.24
MW-9	5/25/2010	0.00	20.31	6310.05
MW-9	8/12/2010	0.00	20.41	6309.95
MW-9	11/17/2010	0.00	30.49	6299.87
MW-9	2/14/2011	0.00	31.60	6298.76
MW-9	5/17/2011	0.00	30.39	6299.97
MW-9	8/9/2011	0.00	29.84	6300.52
MW-9	11/9/2011	0.00	28.76	6301.60

Notes:

BTOC - Below Top of Casing

AMSL - Above Mean Sea Level

NM - Not Measured

* - Well was destroyed

APPENDIX A

GENERAL CHEMISTRY ANALYTICAL LABORATORY REPORT

JANUARY 4, 2012

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

Report Summary

Wednesday January 11, 2012

Report Number: L554320
Samples Received: 01/05/12
Client Project:

Description: OH Randell

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Daphne R Richards

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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12065 Lebanon Rd.
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

James McDaniel
XTO Energy - San Juan Division
382 Road 3100
Aztec, NM 87410

January 11, 2012

ESC Sample # : L554320-01

Date Received : January 05, 2012
Description : OH Randell

Site ID : OH RANDELL

Sample ID : MW-3

Project # :

Collected By : Brooke Herb
Collection Date : 01/04/12 12:35

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	43.	5.0	mg/l	9056	01/05/12	5
Fluoride	0.84	0.50	mg/l	9056	01/05/12	5
Nitrate	21.	0.50	mg/l	9056	01/05/12	5
Nitrite	1.5	0.50	mg/l	9056	01/05/12	5
Sulfate	220	25.	mg/l	9056	01/05/12	5
Alkalinity	460	20.	mg/l	2320B	01/08/12	1
ORP	150		mV	2580	01/11/12	1
pH	7.9		su	9040C	01/07/12	1
Phosphorus,Total	0.90	0.10	mg/l	365.1	01/11/12	1
Specific Conductance	2100	1.8	umhos/cm	9050A	01/07/12	1
Dissolved Solids	1100	10.	mg/l	2540C	01/09/12	1
Calcium	400	0.50	mg/l	6010B	01/06/12	1
Iron	320	0.10	mg/l	6010B	01/06/12	1
Magnesium	96.	0.10	mg/l	6010B	01/06/12	1
Potassium	56.	0.50	mg/l	6010B	01/06/12	1
Sodium	320	0.50	mg/l	6010B	01/06/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 01/11/12 16:36 Printed: 01/11/12 16:37
L554320-01 (PH) - 7.90@16.7c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L554320-01	WG573078	SAMP	pH	R1992712	T8
	WG573486	SAMP	Phosphorus,Total	R1996153	T2

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
T2	(ESC) - Additional method/sample information: The laboratory analysis was from an unpreserved or improperly preserved sample.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC.
Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
01/11/12 at 16:37:05

TSR Signing Reports: 288
R5 - Desired TAT

drywt

Sample: L554320-01 Account: XTORNM Received: 01/05/12 09:00 Due Date: 01/12/12 00:00 RPT Date: 01/11/12 16:36

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Tax I.D. 62-0814289

Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L554320

January 11, 2012

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Calcium	< .5	mg/l			WG572927	01/06/12 08:39
Iron	< .1	mg/l			WG572927	01/06/12 08:39
Magnesium	< .1	mg/l			WG572927	01/06/12 08:39
Potassium	< .5	mg/l			WG572927	01/06/12 08:39
Sodium	< .5	mg/l			WG572927	01/06/12 08:39
Chloride	< 1	mg/l			WG572825	01/05/12 08:28
Fluoride	< .1	mg/l			WG572825	01/05/12 08:28
Nitrate	< .1	mg/l			WG572825	01/05/12 08:28
Nitrite	< .1	mg/l			WG572825	01/05/12 08:28
Sulfate	< 5	mg/l			WG572825	01/05/12 08:28
Specific Conductance	1.20	umhos/cm			WG573041	01/07/12 11:34
pH	4.70	su			WG573078	01/07/12 10:45
Alkalinity	< 20	mg/l			WG573158	01/08/12 15:30
Dissolved Solids	< 10	mg/l			WG572865	01/09/12 13:04
Phosphorus,Total	< .1	mg/l			WG573486	01/11/12 10:52

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Calcium	mg/l	14.0	14.0	0	20	L554496-02	WG572927
Iron	mg/l	9.30	9.30	0.108	20	L554496-02	WG572927
Magnesium	mg/l	5.50	5.50	0.182	20	L554496-02	WG572927
Potassium	mg/l	3.00	2.94	0.340	20	L554496-02	WG572927
Sodium	mg/l	14.0	14.0	1.44	20	L554496-02	WG572927
Sulfate	mg/l	0	5.30	NA	20	L553650-02	WG572825
Sulfate	mg/l	61.0	61.0	0	20	L553150-03	WG572825
Sulfate	mg/l	170.	170.	0	20	L553650-07	WG572825
Specific Conductance	umhos/cm	1000	1000	0.598	20	L553636-01	WG573041
Specific Conductance	umhos/cm	24000	24000	0.416	20	L554565-06	WG573041
pH	su	5.20	5.20	0.966	1	L554311-01	WG573078
pH	su	7.50	7.50	0.535	1	L554724-01	WG573078
Alkalinity	mg/l	69.0	69.0	0.145	20	L554586-02	WG573158
Dissolved Solids	mg/l	180.	175.	0	5	L554281-02	WG572865
Phosphorus,Total	mg/l	0	0	0	20	L554076-02	WG573486
Phosphorus,Total	mg/l	1.40	1.40	0.717	20	L554532-01	WG573486

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Est. 1970

XTO Energy - San Juan Division
James McDaniel
382 Road 3100

Aztec, NM 87410

Quality Assurance Report
Level II

L554320

January 11, 2012

Analyte	Units	Duplicate Result	Duplicate	RPD	Limit	Ref Samp	Batch
ORP	mV	150.	150.	0	20	L554320-01	WG573607

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Calcium	mg/l	11.3	11.8	104.	85-115	WG572927
Iron	mg/l	1.13	1.14	101.	85-115	WG572927
Magnesium	mg/l	11.3	12.1	107.	85-115	WG572927
Potassium	mg/l	11.3	11.7	104.	85-115	WG572927
Sodium	mg/l	11.3	12.2	108.	85-115	WG572927
Chloride	mg/l	40	40.4	101.	90-110	WG572825
Fluoride	mg/l	8	8.24	103.	90-110	WG572825
Nitrate	mg/l	8	8.27	103.	90-110	WG572825
Nitrite	mg/l	8	8.08	101.	90-110	WG572825
Sulfate	mg/l	40	40.2	101.	90-110	WG572825
Specific Conductance	umhos/cm	350	340.	97.1	85-115	WG573041
pH	su	7.98	8.07	101.*	98-101	WG573078
Alkalinity	mg/l	100	96.0	96.0	85-115	WG573158
Dissolved Solids	mg/l	8800	8590	97.6	85-115	WG572865
Phosphorus,Total	mg/l	1	0.955	95.5	85-115	WG573486
ORP	mV	229	230.	100.	95.6-104.37	WG573607

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Chloride	mg/l	40.3	40.4	101.	90-110	0.248	20	WG572825
Fluoride	mg/l	8.27	8.24	103.	90-110	0.363	20	WG572825
Nitrate	mg/l	8.27	8.27	103.	90-110	0	20	WG572825
Nitrite	mg/l	8.07	8.08	101.	90-110	0.124	20	WG572825
Sulfate	mg/l	40.3	40.2	101.	90-110	0.248	20	WG572825
Specific Conductance	umhos/	340.	340.	97.0	85-115	0	20	WG573041
pH	su	8.05	8.07	101.	98-101	0.248	20	WG573078
Alkalinity	mg/l	99.0	96.0	99.0	85-115	3.08	20	WG573158
Dissolved Solids	mg/l	8600	8590	98.0	85-115	0.0931	20	WG572865
Phosphorus,Total	mg/l	0.928	0.955	93.0	85-115	2.87	20	WG573486

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
ORP	mV	230.	230.	100.	95.6-104.37	0	20	WG573607

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Calcium	mg/l	25.4	14.0	11.3	101.	75-125	L554496-02	WG572927
Iron	mg/l	10.2	9.30	1.13	79.6	75-125	L554496-02	WG572927
Magnesium	mg/l	17.3	5.50	11.3	104.	75-125	L554496-02	WG572927
Potassium	mg/l	14.3	2.94	11.3	100.	75-125	L554496-02	WG572927
Sodium	mg/l	25.3	14.0	11.3	100.	75-125	L554496-02	WG572927
Nitrate	mg/l	5.03	0	5	101.	80-120	L554364-01	WG572825
Nitrite	mg/l	5.24	0	5	105.	80-120	L554364-01	WG572825
Alkalinity	mg/l	110.	22.0	100	88.0	80-120	L554586-01	WG573158
Phosphorus,Total	mg/l	2.52	0	2.5	101.	80-120	L554076-01	WG573486

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Calcium	mg/l	25.5	25.4	102.	75-125	0.393	20	L554496-02	WG572927
Iron	mg/l	10.2	10.2	79.6	75-125	0	20	L554496-02	WG572927
Magnesium	mg/l	17.3	17.3	104.	75-125	0	20	L554496-02	WG572927
Potassium	mg/l	14.2	14.3	99.6	75-125	0.702	20	L554496-02	WG572927
Sodium	mg/l	25.0	25.3	97.3	75-125	1.19	20	L554496-02	WG572927
Nitrate	mg/l	4.96	5.03	99.2	80-120	1.40	20	L554364-01	WG572825
Nitrite	mg/l	5.16	5.24	103.	80-120	1.54	20	L554364-01	WG572825
Alkalinity	mg/l	110.	110.	88.0	80-120	0	20	L554586-01	WG573158
Phosphorus,Total	mg/l	2.58	2.52	103.	80-120	2.35	20	L554076-01	WG573486

Batch number /Run number / Sample number cross reference

WG572927: R1991176: L554320-01
WG572825: R1991332: L554320-01
WG573041: R1992673: L554320-01
WG573078: R1992712: L554320-01
WG573158: R1992753: L554320-01
WG572865: R1993192: L554320-01
WG573486: R1996153: L554320-01
WG573607: R1996293: L554320-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

C126

Chain of Custody
Page 1 of 1

Company Name/Address	Alternate Billing
XTO Energy, Inc. **382 County Road 3100** **Aztec, NM 87410**	XTORNM031810S Report to: James McDaniel E-mail to: james_mcdaniel@xtoenergy.com

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

Project Description: OH Randel — City/State Collected:

PHONE: 505-333-3701 — Client Project No. — Lab Project #

FAX:

Collected by: Brooke Herb — Site/Facility ID#: OH Randel — P.O.#

Collected by(signature): Brooke Herb

Packed on Ice N___ Y✓

Rush? (Lab MUST be Notified)
_____Next Day.....100%
_____Two Day.....50%
_____Three Day.....25%

Date Results Needed

Email?___No_X__Yes
FAX?____No___Yes

CoCode (lab use only)
XTORNM
Template/Prelogin

Shipped Via: Fed Ex

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	pH, EC, TDS, Alkalinity	Anions (nitrate, nitrite, Chloride, Fluoride, phosphate, Sulfate)		Cations (Iron, Calcium, Magnesium, potassium, Sodium)					Remarks/contaminant	Sample # (lab only)
MW-3	Grab	GW	23'	1/4/12	12:35	4	✓	✓		✓						155432-01

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks: "ONLY 1 COC Per Site!!"

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx_X_ UPS__Other__	Condition (lab use only)
Brooke Herb	1/4/12	14:17		434198192196	JR
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature)	Temp: 2.9°C / Bottles Received: 4	
Relinquisher by:(Signature	Date:	Time:	Received for lab by: (Signature)	Date: 1/5/12 / Time: 09:00	pH Checked: L2 / NCF:

APPENDIX B

REFERENCES

REFERENCES

Fetter, C.W., 1988, *Applied Hydrogeology*, 587 p.

Stone,W.J., Lyford, F.P., Frenzel, P.F., Mizell, N.H., and Padgett, E.T., 1983, *Hydrogeology and Water Resources of the San Juan Basin, New Mexico*, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p.